federal register

Monday
October 3, 1988

Part VI

Environmental Protection Agency

40 CFR Part 60

Standards of Performance for New Stationary Sources; Magnetic Tape Manufacturing Industry; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[AD-FRL-3332-4]

Standards of Performance for New Stationary Sources; Magnetic Tape Manufacturing Industry

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Standards of performance for new, modified, and reconstructed facilities that manufacture magnetic tape were proposed in the Federal Register on January 22, 1986 (51 FR 2996). This action promulgates the standards of performance for affected facilities that manufacture magnetic tape. These standards implement section 111 of the Clean Air Act (CAA) and are based on the Administrator's determination that emissions from industrial paper coating cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare. Magnetic tape manufacturing is part of the industrial paper coating category, which includes coating of foil and plastic film. The intended effect of these standards is to require all new, modified, and reconstructed facilities that manufacture magnetic tape to control emissions of volatile organic compounds (VOC) to the level achievable by the best demonstrated system of continuous emission reduction, considering costs, nonair quality health and environmental impacts, and energy requirements.

EFFECTIVE DATE: October 3, 1988. These standards apply to affected facilities for which construction, reconstruction, or modification commenced after January 22, 1986.

Under section 307(b)(1) of the CAA, judicial review of the actions taken by this notice is available *only* by the filing of a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this rule. Under section 307(b)(2) of the CAA, the requirements that are the subject of today's notice may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: *Background Information Document:* The background information document (BID) for the promulgated standards may be obtained from the U.S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Magnetic Tape Manufacturing Industry—Background Information for Promulgated Standards" (EPA-450/3-85-029b). The BID contains (1) a summary of all of the public comments made on the proposed standards and EPA's response to the comments, (2) a summary of the changes made to the standards since proposal, and (3) the final Environmental Impact Statement, which summarizes the impacts of the standards.

Docket: Docket No. A-82-45, containing information considered by EPA in development of the promulgated standards, is available for public inspection between 8:00 a.m. and 3:30 p.m., Monday through Friday, at EPA's Central Docket Section (LE-131), South Conference Center, Room 4, Waterside Mall, 401 M Street SW., Washington, DC 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: For further information and official interpretations of applicability, compliance requirements, enforcement decisions, and reporting aspects of the promulgated standard, contact the appropriate Regional, State, or local office contact as listed in 40 CFR 60.4. For technical information contact Ms. Karen Catlett (telephone (919) 541-0835) or Mr. James C. Berry (telephone (919) 541-5605), Chemicals and Petroleum Branch, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. For information on compliance testing and monitoring provisions of the promulgated standard, contact Mr. Gary D. McAlister (telephone (919) 541-2237) or Mr. Joseph E. McCarley (telephone (919) 541-5546), Emission Measurement Branch, Technical Support Division (MD-14), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. For information on the regulatory decisions in the promulgated standard, contact Mr. Sims L. Roy (telephone (919) 541-5263) or Mr. Gilbert H. Wood (telephone (919) 541-5625), Standards Development Branch, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

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I. Background

The magnetic tape manufacturing industry is classified as a segment of the industrial paper coating stationary source category. Sources in this category emit VOC, which have been shown to take part in atmospheric reactions producing ozone and other compounds that are well established as having adverse effects on health and welfare.

Section 111 of the CAA requires the Administrator to publish a list of categories of major stationary sources that cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare. The categories have been placed on the list (40 CFR 60.16) in order of priority based on the quantities of air pollutant emissions, the mobility and competitive nature of the sources within each category, and the extent to which the pollutants endanger public health and welfare. Industrial paper coating is fourth on the list. Today's action promulgates new source performance standards (NSPS or "standards") for the magnetic tape manufacturing segment of this source category as required by section 111 of the CAA.

The NSPS occupy a unique place in the management of air quality. They require new, modified, and reconstructed sources to meet uniform reasonable minimum emission limits nationwide. They are intended to reduce potential increases in air pollution from new sources and to improve air quality as older plants and equipment eventually are retired from service. State and local regulations applicable to the same sources and pollutants are designed to protect local air quality values and to ensure that air quality does not deteriorate significantly. They vary widely from place to place and are usually least stringent in areas with the cleanest air. The NSPS provide a minimum nationwide requirement for new, modified, and reconstructed sources, thereby lessening the incentive

to locate in areas with less-restrictive regulations.

The CAA stipulates that costs be considered in setting NSPS requirements. This evaluation of costs is carried out in the context of a nationwide program encompassing an entire class of sources without consideration of the local air quality conditions that must be considered in nonattainment areas or in prevention of significant deterioration (PSD) in accordance with permitting activities associated with the CAA. As a result, NSPS cost effectiveness and reasonable-cost analyses are inappropriate decision criteria where source-specific air quality (and related public health considerations) are important factors. Therefore, State standards, which may need to be more stringent than the NSPS, may need to be based on analyses that are specific to a particular air quality situation.

The regulation promulgated today is the culmination of a lengthy process. In the phase leading to proposal, several control options were studied for each type of emission source found at magnetic tape manufacturing plants. Environmental impact and cost analyses were performed on each control option for each type of emission source. A wide range of regulatory alternatives was developed representing combinations of the control options. The regulatory alternatives were analyzed for the economic impacts each would have on the industry nationwide. The control options and regulatory alternatives are presented in detail in the proposal BID. An extensive summary is in the proposal preamble.

In the proposed rule, two affected facilities were defined: each solvent storage tank less than 75 cubic meters (m^3) in capacity and each coating operation and its associated coating mix preparation equipment. The proposed standard for solvent storage tanks required a submerged fill pipe and a pressure relief valve with a setting of at least 103 kilopascals or the capture and ventilation of all emissions to a 95 percent efficient control device. Coating mix preparation equipment was to be controlled by capturing and venting all emissions to a 95 percent efficient control device. The standard proposed for a coating operation required that emissions be controlled by recovering or destroying at least 93 percent of the VOC content of the coating applied at the coating applicator. These standards were based on the control options yielding the greatest reductions in emissions with reasonable cost effectiveness.

New information provided by industry during the public comment period has resulted in several changes in this regulation. All provisions pertaining to solvent storage tanks were withdrawn in a separate notice published in the **Federal Register** on November 25, 1986 (51 FR 42800). The final rule is summarized in section II below. Additional information on public participation can be found in section VII. The changes made to the standards between proposal and promulgation are summarized at the beginning of section VIII, followed by a presentation of the major comments and the Agency's response to each. The rationale for the changes made to the standards can be found in these responses.

II. The Standards

Section 111 of the CAA requires that standards of performance be established at levels that reflect the performance of best demonstrated technology (BDT) for emission control. Two affected facilities have been designated in the promulgated standards: each piece of coating mix preparation equipment (mix equipment) and each coating operation. New coating operations utilizing less than 38 m^3 of solvent annually and modified or reconstructed coating operations utilizing less than 370 m^3 of solvent annually are subject only to specified recordkeeping and reporting requirements. A cross reference table has been included in the regulation to help users determine which sections are applicable.

A. Requirements for Mix Equipment

Two categories of mix equipment have been distinguished based on the associated control equipment. A logic flow diagram of the mix equipment standards is presented in Figure 1. For new mix equipment constructed with concurrent construction of a new VOC control device (other than a condenser) on a magnetic tape coating operation at the plant (i.e., construction of a new control device occurring within the period beginning 6 months before and ending 2 years after construction of the mix equipment), BDT is the installation of covers and ductwork and the venting of all emissions to a control device that is at least 95 percent efficient. The standard based on this BDT requires the installation and use of covers and the venting of VOC emissions from the equipment to a 95 percent efficient control device. For modified or reconstructed mix equipment and for new mix equipment constructed with no concurrent installation of a new control device (or with concurrent installation of a condenser), BDT is the installation and use of covers alone or covers and venting to a control device. No control device efficiency is specified in this latter case. A cover is defined as a device that lies over the equipment opening, that is attached to or extends at least 2 centimeters (cm) beyond the rim of the opening, and that maintains contact with the rim along its entire perimeter. A cover must be in place at all times that the equipment is in use except when ingredients are being added, samples are being withdrawn, the contents are being transferred, or visual inspection is necessary. The distinction made between BDT for new mix equipment constructed with concurrent construction of a new control device and all other affected mix equipment is based on the Administrator's judgment that the cost effectiveness of controlling modified or reconstructed mix equipment or new mix equipment constructed without concurrent construction of a control device is unreasonable. Venting of emissions to a condenser, even when constructed concurrently, is not required because the moist, intermittent, low-concentration airstreams from mix equipment are incompatible with the operation of a closed-loop condenser on a drying oven.

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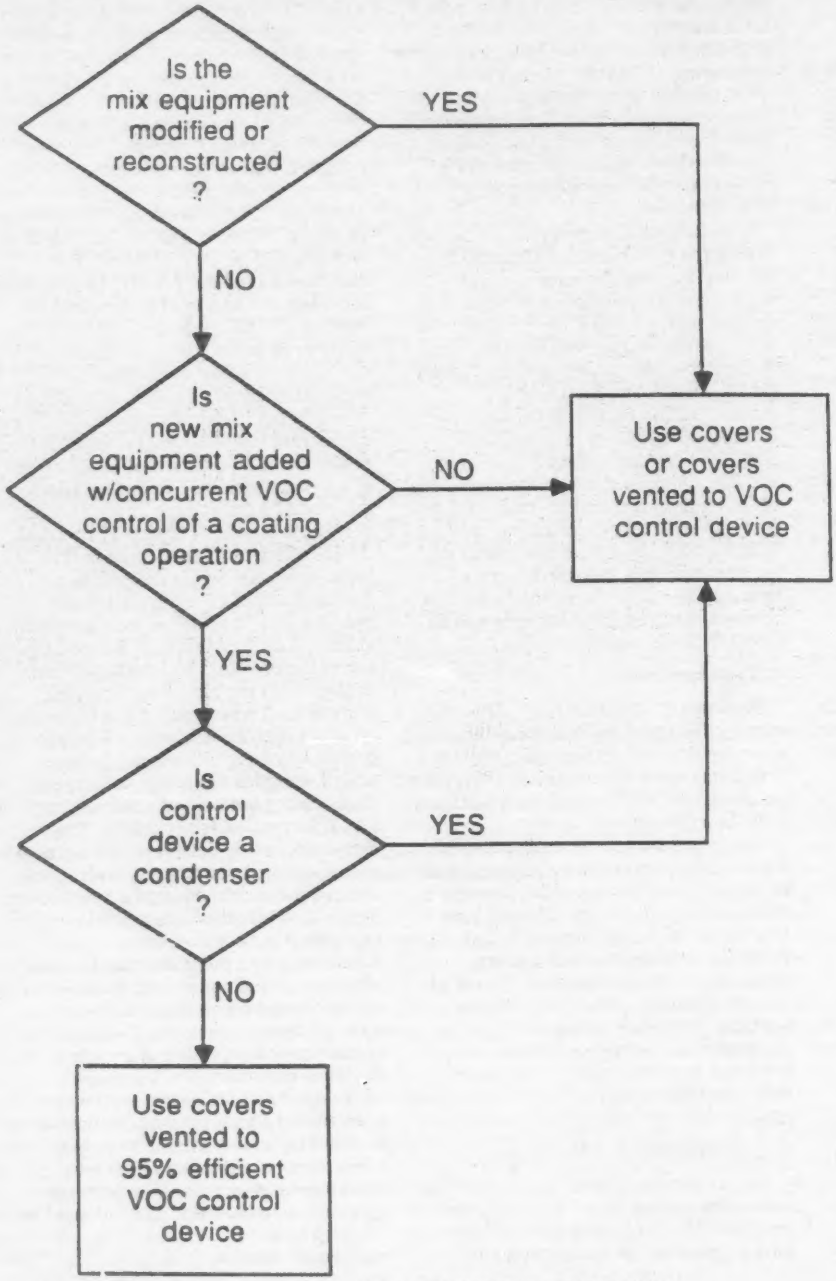
Is the mix equipment modified or reconstructed ?
YES
NO
Is new mix equipment added w/concurrent VOC control of a coating operation ?
NO
Use covers or covers vented to VOC control device
YES
Is control device a condenser ?
YES
NO
Use covers vented to 95% efficient VOC control device
MIX EQUIPMENT STANDARD

Figure 1. Logic flow diagram for Magnetic Tapes NSPS.

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The compliance provisions of the standards for mix equipment require a demonstration that the mandated equipment is in use. The owner or operator of an affected facility required to cover the equipment and vent emissions to a 95 percent efficient control device must demonstrate to the Administrator's satisfaction that the covers meet specified criteria and are installed and used properly, the mix equipment is vented to a control device, and the control device efficiency is greater than or equal to 95 percent. The control device efficiency must be tested using EPA Methods 1 or 1A; 2, 2A, 2C, or 2D; 3; 4; and 18, 25, or 25A on both the inlet(s) and outlet(s) of the control device. A piece of mix equipment requiring only a cover or a cover and venting to a control device must demonstrate upon inspection that the cover meets the criteria specified in the standard. In addition, procedures for proper use of covers must be posted in areas of use. If the mix equipment is vented to a control device, this also must be demonstrated upon inspection.

Monitoring and reporting provisions are included in the standards for mix equipment that is required to be covered and vented to a 95 percent efficient control device. A monitor must be installed that continually measures and records a critical parameter of control device operation (e.g., the outlet concentration level of organic compounds of a carbon adsorber). A baseline level of the monitored parameter is established during the required performance test. Any subsequent 3-hour period (or other stipulated period) of excessive variation in the monitored parameter must be reported quarterly. If no such periods occur, a report so stating is required semiannually. No monitoring or reporting requirements are required when mix equipment is required only to be covered or covered and vented to a control device, but enforcement personnel must make a determination of compliance status at every inspection.

B. Requirements for Coating Operations

The second affected facility covered by the promulgated standards is each coating operation. A coating operation includes any coating applicator, flashoff area, and drying oven located between a base film unwind station and a base film rewind station that together coat a continuous base film to produce magnetic tape. The promulgated standards differentiate among classes of coating operations. A logic flow diagram of the coating operation standards is presented in Figure 2. A new affected coating operation must be controlled such that at least 93 percent of the VOC content of the coating applied at the coating applicator(s) is recovered or destroyed. (This is the overall level of control; it is the product of capture efficiency and control device efficiency.) This requirement applies also to any existing coating operation with less than 90 percent control that becomes affected when modified or reconstructed. However, an existing coating operation that demonstrates an overall control efficiency of 90 percent or greater before modification or reconstruction using the procedures specified in the compliance provisions of the regulation will not be required to add further controls but must maintain the demonstrated overall level of control or 93 percent, whichever is lower, after modification or reconstruction. If the owner or operator of a modified or reconstructed coating operation subsequently adds a new control device, the final standards requires that the control device be at least 95 percent efficient. In addition, the owner or operator must demonstrate that the overall level of control determined prior to installation of the new control device is still being achieved. If this demonstration shows that a higher overall efficiency is being achieved with the new control device than was previously demonstrated, then the coating operation must continue to meet either this higher demonstrated overall level of control or 93 percent, whichever is lower.

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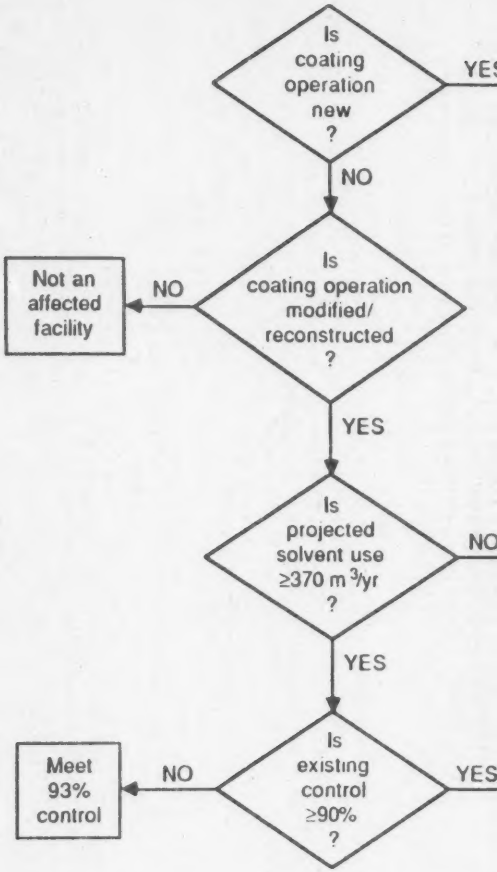

COATING

Figure 2. Logic flow diagram for Ma

Magnetic Tapes NSPS--Coating operation standard.

These standards are based on BDT for capture and reduction of VOC emissions. Theoretically, capture of all VOC emissions can be accomplished by use of a total enclosure around the coating operation; however, 100 percent capture at all times is probably never realized in practice. Extensive emission test data from many industries, including magnetic tape manufacturing and other web-coating industries, have demonstrated that carbon adsorbers can consistently achieve 95 percent efficiency. Thus, for new, modified, and reconstructed facilities, BDT consists of a total enclosure vented to a highly efficient control device. However, the overall level of control that must be met by new versus modified or reconstructed facilities differs. The distinction in the regulation between source types recognizes that unreasonable expense could be incurred if existing well-controlled facilities that undergo modification or reconstruction were required by a national standard to make sizeable capital outlays (e.g., replacement of an entire control device) to increase emission control only incrementally. Of course, additional control may well be warranted in specific circumstances under the requirements of PSD or new source review (NSR) regulations in attainment or nonattainment areas, respectively. In such circumstances, the cost-effectiveness and reasonable-cost analyses performed in development of the NSPS are not appropriate decision criteria. Additional detail on the considerations leading to these standards is contained in the proposal preamble, in Section VIII of this preamble, and in the promulgation BID.

Compliance with the standards for coating operations can be demonstrated in a variety of ways depending upon the control device in use and the configuration of affected and nonaffected facilities. For a solvent recovery device that controls only the affected coating operation, a liquid material balance is performed over each and every nominal 1-month period. Solvent use is determined from coating consumption and solvent content as measured by EPA Method 24. The quantity of solvent used is then compared to the solvent recovered. When a destruction device is used to control emissions or when a recovery device controls both affected and nonaffected facilities, a two-part gaseous emission test is used. Capture efficiency is measured by ducting fugitive emissions through a testable stack and comparing this measurement with the measured total captured emissions. Control device efficiency is computed by testing the inlet and outlet VOC concentrations. The product of the capture efficiency and control efficiency is the total or overall efficiency of the system. The VOC flows are measured by EPA Methods 1 or 1A; 2, 2A, 2C, or 2D; 3; 4; and 18, 25, or 25A.

Compliance determinations using the liquid material balance procedures are made for each nominal 1-month period. Any months of noncompliance must be reported quarterly. Compliance under any other procedure is demonstrated initially, and continued compliance is indicated by monitoring critical parameters of the control system in use. If these parameters subsequently vary by a prescribed amount over a 3-hour period (or the stipulated period) from the values maintained during the performance test, periods of excess variation must be reported quarterly. When operations do not dictate quarterly reports, a semiannual report so stating is required.

There is an alternative means of demonstrating compliance with the standards for coating operations. Under this alternative, the owner or operator must first demonstrate that the coating operation is contained within a total enclosure. The owner or operator can demonstrate that an enclosure is a total enclosure by showing that it meets the requirements set out in the rule (see section VIII.E). If the enclosure does not meet the requirements, the owner or operator can gain approval on a case-by-case basis by demonstrating to the satisfaction of the Administrator that all VOC emissions within the enclosure are captured and vented to the control device. Second, a measurement of control device efficiency also must be made. All measurements are made using an appropriate combination of EPA Methods 1 or 1A; 2, 2A, 2C, or 2D; 3; 4; and 18, 25, or 25A. The control device must be 95 percent efficient for those coating operations required to recover or destroy 93 percent of the applied VOC. For those owners or operators of existing coating operations wishing to demonstrate the applicability of the lower standard prior to modification or reconstruction, the control device must be at least 92 percent efficient. After modification or reconstruction, the control device efficiency must be maintained at or above the level demonstrated prior to modification or reconstruction (up to 95 percent). The lower control device efficiency has been specified for existing well-controlled facilities because the cost to remove an existing control device and to add a new control device to control the incremental emissions is considered unreasonable. However, if the owner replaces the existing control device, the owner or operator must install at least a 95 percent efficient control device to demonstrate compliance with the standard. Therefore, the owner or operator can defer replacing an existing control device with a new control device when the modification is made, but must consider the consequences of meeting the standard in the future when the existing control device is replaced. With the replacement of the control device, the cost of controlling the incremental emissions is reasonable.

C. Coating Formulation Alternative

A low-solvent coating cutoff for both affected facilities is based on a high-solids coating formulation, defined as coatings that contain a maximum of 0.20 kilogram of VOC per liter (kg VOC/l) of coating solids. This cutoff was calculated to be the level above which add-on controls become cost effective. Demonstration of the use of high-solids coatings can be made in lieu of the other compliance provisions for both affected mix equipment and affected coating operations. If this method of compliance demonstration is selected, the owner or operator must calculate the weighted average kg VOC/l coating solids for each nominal 1-month period. The weighted average is computed from the VOC content of each coating as determined by EPA Method 24 and the quantity of each coating used during the period in question. Any nominal 1-month period of noncompliance must be reported quarterly. Compliance must be reported semiannually.

The averaging period for this compliance method has been designated as each nominal 1-month period to afford the source some flexibility in coating formulations. Magnetic tape manufacturers typically manufacture a variety of products, often on the same coating line. The solvent content of the coatings generally varies somewhat by product. In addition, ambient conditions or variations in other raw materials may necessitate slight variations in solvent content between batches of coating for a single product. While no coatings are now in use that approach the compliance coating formulation, it is expected that, if and when they are developed, they will similarly vary in solvent content. Because the coating formulation standard is very stringent, it is likely that some formulations in this range will be slightly below the cutoff and that others will be slightly above. The monthly averaging period will allow greater flexibility in formulations and

production than would a shorter averaging period, adding to the incentive to pursue the development of high-solids coatings.

A switch to high-solids coating technology would be environmentally beneficial because the prescribed average formulation (0.20 kg VOC/l coating solids) corresponds to a greater emission reduction than does 93 percent control of the solvent applied in traditional coating formulations and because the adverse secondary environmental and energy impacts that normally result from add-on controls would be avoided. In any case, the coating formulation standard is so stringent that it is very unlikely that coatings with appreciably lower solvent content will be developed. Thus, in order to maintain an average solvent content that complies with the standard, all coatings used by a source will have to be near the prescribed solvent content. For this reason, sources complying with the NSPS by this method are not expected to experience the type of high emission rate over a short period that leads to significant local ambient air quality impacts and that shorter averaging periods are meant to discourage.

D. Selection of the Format of the Standards

As discussed in the proposal preamble, an emission standard is not feasible for mix equipment. Because mix equipment is generally operated for relatively short periods, airflow rates are relatively low and intermittent, making representative emission measurements expensive and difficult, if not impossible. Therefore, equipment standards have been promulgated for mix equipment. The CAA requires that equipment standards include procedures for ensuring proper operation and maintenance. The procedures developed for mix equipment are described in detail in Section II.A. of this preamble.

A "percent reduction" standard has been promulgated for coating operations. This type of emission standard was deemed appropriate because it consistently reflects the application of BDT at all facilities yet allows flexibility in the methods selected to achieve the standard.

The use of high-solids coatings has been promulgated as an alternative standard for both affected facilities. Although no such coatings are known to be in use commercially, the standard will allow their use should they become available.

E. Enforcement Provisions

The provisions of today's rule that require initial performance tests and subsequent monitoring and reporting will ensure that the compliance status of affected coating operations can be tracked. Most coating mix preparation equipment will require periodic inspection to determine compliance status. Enforcement may be delegated to State and local agencies, but the Agency retains the right to act. When it is determined that the owner or operator of a stationary source is violating the NSPS or has failed to comply with the applicable testing, recordkeeping, or reporting requirements, the Agency may bring an enforcement action under section 113 of the CAA. The Agency may issue an administrative order to comply under section 113(a); initiate a civil action under section 113(b) seeking a court order to comply and civil penalties; or, where appropriate, initiate a criminal action under section 113(c). Section 120 of the CAA authorizes the Agency or a State to assess and collect noncompliance penalties against any owner or operator of a stationary source that is not in compliance with any requirement established under Section 111 of the CAA. Noncompliance penalties are to be an amount that is no less than the economic value that the owner has derived from noncompliance. Regulations governing their assessment and collection of noncompliance penalties have previously been promulgated in 40 CFR Part 66 and 40 CFR Part 67.

III. Environmental Impacts

Since the time of proposal, revised growth projections for the magnetic tape manufacturing industry and revisions to the standards applicable to some emission points have resulted in changes in the anticipated impacts of the standard. Based on recent information received from industry representatives, the projected number of coating lines (coating operations and associated mix equipment) to become affected by the fifth year of applicability (1991) has been revised downward from 21 to 16. Of these, 5 will be new, and 11 will be modified or reconstructed. However, one new line and two modified lines are expected to fall below the applicable minimum annual solvent utilization cutoffs and, thus, are not expected to be required by today's rule to control emissions. In addition, under today's standards, two of the modified and reconstructed coating operations are not expected to be required to increase control efficiency. Of the remaining 11 projected lines, one new and three modified or reconstructed lines are expected to be 0.33 meter (m) wide, and three new and four modified or reconstructed lines are expected to be 0.66 m wide (the "typical" production size discussed in this preamble). The proposed standard for solvent storage tanks has been deleted from the final rule.

The reduction in the number of facilities to become affected and in the level of control required for some equipment has reduced both the beneficial and adverse environmental impacts estimated at the time of proposal. The nationwide VOC emissions in the fifth year after promulgation from affected facilities controlled to the level of the standards is now expected to be about 960 megagrams (Mg) (60 percent) below the regulatory baseline, the emission level required by the typical State implementation plan (SIP). The typical new coating line subject to NSPS emission reductions will emit about 131 Mg less VOC than would a line subject to the typical SIP. This represents a decrease in emissions of about 73 percent. The typical modified or reconstructed coating line will emit about 92 Mg less VOC than a line at baseline control, a decrease of about 51 percent.

Estimates of the other environmental impacts are based on the use of fixed-bed carbon adsorbers (the most common control device) to control coating operation emissions. This assumption results in worst-case estimates for wastewater and solid waste impacts. Under the final rule, annual wastewater discharges from the typical new coating line will increase by about 380 m^3 or 24 percent over the level resulting from control under the SIP's. Discharges from a typical modified or reconstructed coating line will exceed the baseline control level by 190 m^3 or 12 percent. Nationwide wastewater discharges in the fifth year after promulgation will increase by a total of about 2,400 m^3 (17 percent). Solid waste (spent carbon) generated by the typical new and modified or reconstructed coating lines as a result of the final regulation is expected to exceed the amount attributable to SIP control by 120 kg (17 percent) and 70 kg (10 percent), respectively, for a nationwide total of 800 kg (13 percent) in the fifth year after promulgation.

The secondary environmental impacts of the NSPS will also be lower than estimated at proposal. The typical new coating line is expected to discharge 35 kg more VOC annually in wastewater than a line controlled to the level of the

typical SIP. The typical modified or reconstructed line will discharge only 20 kg more. These increases (23 and 11 percent, respectively) will result in an estimated nationwide increase of 225 kg (16 percent) over the regulatory baseline in the fifth year after promulgation. These estimates should be considered as highly tentative, however, as the actual increased levels of VOC in wastewaters will be subject to the permitting actions of State and Federal regulatory officials charged with implementation of the Clean Water Act. Accordingly, the inclusion in this document of the above estimated increases in future discharges of VOC in wastewaters does not constitute a determination or finding, either express or implicit, that such a discharge from any particular point source will comply with applicable water quality or technology based effluent standards. This judgment can only be made by the applicable local, State, or Federal regulatory agency on a case-by-case basis.

The adverse environmental impacts of the small increases in wastewater discharges and solid waste generation resulting from the NSPS are minor in comparison to the environmental benefits of the resulting reduction in VOC emissions. Proper treatment and disposal techniques render wastewater and solid waste virtually harmless. Emissions of VOC contribute to the formation of ozone and other photochemical oxidants on the atmosphere. In light of the persistent nationwide problems with these air pollutants, the benefits to be derived from the NSPS far outweigh the adverse impacts.

IV. Energy Impacts

The anticipated impact of the standards on energy consumption has been revised downward for the same reasons that environmental impacts were revised. A typical coating line that is controlled to the level required by typical SIP's would consume about 10.5 terajoules (TJ) for emission control. As a result of the standards, this energy usage will increase 13 percent to about 12 TJ for a typical new coating line and 6 percent to about 11 TJ for a typical modified or reconstructed line. Total nationwide energy consumption in the fifth year will exceed that due to control at the level of the typical SIP's by approximately 8 TJ. These energy requirements will have negligible effect on the cost and availability of energy.

V. Cost Impacts

The estimates of the cost impacts of the standards promulgated today have undergone extensive revision since proposal. Information received from industry on the type of equipment purchases that may be needed to achieve compliance at modified facilities has been incorporated into the cost functions used in the Agency's analysis. The recalculated cost estimates reflect the current trend in the industry toward modification of existing coating lines.

The estimated costs of compliance for new coating lines have not changed since proposal. Control of a typical new line to the level mandated by the NSPS can be accomplished with a relatively small marginal capital expenditure (about $32,000) over that required to meet the typical SIP. This increase includes the approximate cost of a total enclosure around the application/flashoff area (assuming that the drying oven itself functions as a total enclosure in the drying area), the ductwork associated with it, and the ductwork required to vent emissions from the mix equipment to the control device. The marginal annual capital recovery and operating costs for a typical new line equipped to meet the NSPS are more than offset by the value of the additional recovered solvent, however, and a net credit of about $73,000 per year results.

Information received from industry sources since proposal indicates that, at times, some control equipment, although adequate to meet the typical SIP, will have to be replaced to meet the NSPS at modified or reconstructed coating lines. In some cases, existing control devices will be too old or will lack sufficient capacity to meet the standards. In others, old, leaky drying ovens or those currently operating under positive pressure will have to be replaced to ensure adequate capture efficiency to meet the standards. Based on contacts with the industry and the model plant parameters and costs developed prior to proposal, it is estimated that the average capital cost of compliance for a typical modified or reconstructed coating line will be about $477,000. The average increase in annual costs for a typical modified or reconstructed coating line is expected to be approximately $31,000.

Taken across all 11 coating lines expected to become subject to the emission limitations, the average capital cost for the equipment required to meet the standards promulgated today is expected to be approximately $274,000 per coating line more than is required to comply with the typical SIP's. The annualized control cost for the average coating line (including capital recovery, utilities, raw materials, labor, and the value of the recovered solvent) is expected to be below that of the SIP level of control by $3,000 per year. In the fifth year after promulgation, it is estimated that cumulative nationwide capital costs will be $3 million above the amount required to meet the SIP's. The total annualized cost in the fifth year is expected to be a credit of about $32,000 per year. These figures represent an increase over the estimates at the time of proposal. At proposal, the expected fifth year totals were $455,000 in capital costs over the expenditures necessary to meet the SIP's and a net credit of $777,000 per year in annualized costs. As discussed in Section VI below, the economic impact of the standards on the magnetic tape manufacturing industry has been assessed, and the Administrator has concluded that those costs will result in negligible economic impact on the industry.

VI. Economic Impacts

The economic impacts of today's rule have been recalculated since proposal using information received from industry and current market prices. This recalculation has resulted in revised impacts but no change in the conclusion that the economic impacts are negligible.

Generally, new coating lines subject to the NSPS will experience a savings due to solvent recovery credits. An exception has been included for small lines for which these credits may not completely offset the cost of control. As a result, an annual solvent use cutoff of 38 m^3 has been established below which new coating operations are subject only to recordkeeping and reporting requirements. This cutoff was discussed in the proposal preamble and has been retained in today's rule. In addition, an annual solvent use cutoff of 370 m^3 has been added for modified or reconstructed coating operations because of the increased costs they may incur to comply with the standards. For coating lines above these cutoffs, the actual and relative cost increases are insignificant compared to the current production costs and retail prices. If all cost increases were passed through to the consumer, the retail price increase is predicted to be less than 0.5 percent.

Modification or reconstruction of coating lines typically results in increased production and, thus, reduced production costs. However, because these changes may also increase emissions, additional control costs will be incurred that will offset some of the reduction in production costs. To evaluate the probable production cost and price impact of added controls on modified lines, the Agency analyzed

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several different cost and production line modification scenarios that were submitted by industry. Because of the limited data provided and its confidential nature, it was not possible to analyze the direct effect of compliance with the NSPS on actual production costs after modification. It was only possible to calculate the change in control costs that would result from the regulation and estimate the impact of these costs on retail prices. For the four different products manufactured at the plants that provided information, the average per-unit control cost increases range from less than $0.01 to $0.06. As a percentage of retail prices, the resulting cost increases represent less than 0.5 percent.

The environmental, energy, and economic impacts are discussed in greater detail in the BID for the promulgated standards ("Magnetic Tape Manufacturing Industry—Background Information for Promulgated Standards" [EPA–450/3–85–029b]).

In addition to the economic impact analysis, an analysis also was made of the cost effectiveness of alternative standards to determine which alternative achieves the greatest emission reduction for a reasonable cost and to ensure that the controls required by this rule are reasonable relative to other regulations. In this case, the promulgated standards would reduce the operating costs of the affected facilities and produce an average 5-year total cost effectiveness savings of about $30 per Mg of emission reduction. Annual solvent use cutoffs are being promulgated for new and modified or reconstructed coating operations so that small plants will not be forced to add controls that are not cost effective for a national standard of this type. Similarly, a baseline control efficiency cutoff for modified and reconstructed facilities is being promulgated. Additional details on costs can be found in the proposal and promulgation BID's.

VII. Public Participation

Prior to proposal of the standards, interested parties were advised by public notice in the **Federal Register** (49 FR 26807) (June 29, 1984) of a meeting of the National Air Pollution Control Techniques Advisory Committee to discuss the standards recommended for proposal for the magnetic tape manufacturing industry. This meeting was held on August 29, 1984. The meeting was open to the public, and each attendee was given an opportunity to comment on the standards recommended for proposal.

The proposed standards were published in the **Federal Register** on January 22, 1986 (51 FR 2996). The preamble to the proposed standards discussed the availability of the BID ("Magnetic Tape Manufacturing Industry—Background Information for Proposed Standards" [EPA–450/3–85–029a]), which described in detail the regulatory alternatives considered and the impacts of those alternatives. Public comments were solicited at the time of proposal, and copies of the BID were distributed to interested parties.

To provide interested persons the opportunity for oral presentation of data, views, or arguments concerning the proposed standards, a public hearing was held on March 11, 1986, at Research Triangle Park, North Carolina. The hearing was open to the public and each attendee was given an opportunity to comment on the proposed standards.

The public comment period was from January 22 to September 5, 1986. Eighteen comment letters were received and 7 interested parties testified at the public hearing concerning issues relative to the proposed standards of performance for the magnetic tape manufacturing industry. The comments have been carefully considered, and, where determined to be appropriate by the Administrator, changes have been made in the proposed standards.

VIII. Significant Comments and Changes to the Proposed Standards

Comments on the proposed standards were received from industry. No State or local agencies, environmental groups, or other interested parties submitted comments. A detailed discussion of the comments and responses can be found in the promulgation BID, which is referenced in the **ADDRESSES** section of this preamble. The summary of comments and responses in the BID and the additional information contained in the docket that was gathered to supplement and verify the assertions made by the commenters serve as the basis for the revisions that have been made to the standards between proposal and promulgation.

Several changes have been made to the standards since proposal. All provisions pertaining to solvent storage tanks have been deleted after a reevaluation of costs. This change was accomplished prior to today's action through a notice published in the **Federal Register** on November 25, 1986 (51 FR 42800). The definition of affected facilities has been changed to define mix equipment and coating operations as separate affected facilities. The definition of "total enclosure" has been clarified, and requirements for demonstrating that a structure qualifies as a total enclosure have been added. Associated monitoring, recordkeeping, and reporting requirements have been modified accordingly. Flexibility has been maintained by allowing structures not meeting the requirements to be approved by the Administrator on a case-by-case basis. One portion of a compliance test that might have been interpreted to allow the efficiency of a total enclosure to be assumed to be 100 percent has been deleted. An alternative compliance provision for coating operations that would have allowed apportionment of long-term liquid material balances based on a single short-term gaseous emission test has been deleted. A number of minor changes have been made to the monitoring and reporting provisions for clarity and consistency with other VOC standards. Minor changes also have been made to some test and compliance provisions and definitions to clarify that the standards for coating operations are intended to apply to the net quantity of VOC actually emitted from the coating operation in the gaseous phase. Thus, any dilution solvent added to the coatings must be accounted for, and any VOC contained in waste coatings or retained in the final product may be measured and subtracted from the total when performing a liquid-liquid VOC material balance. (These adjustments are not necessary for the gaseous emission test compliance procedures.) Also, EPA Methods 18 and 25 have been added as acceptable methods for determining VOC concentrations.

The performance testing and monitoring provisions for fixed-bed carbon adsorption systems have been revised to represent more accurately the performance of multibed systems. This revision was an indirect result of a public comment concerning the performance of fixed-bed carbon adsorbers. Performance tests are the direct means of determining the compliance status of an affected facility and serve as the basis for legal enforcement actions against noncomplying sources. In contrast, the monitoring devices required by these standards serve only as indicators of control device performance to aid enforcement agencies in targeting inspections and performance tests toward potential violators. The revised procedures will ensure that the performance test runs and monitoring averaging periods will parallel the adsorption cycles of all the individual adsorber vessels or the system's complete sequential rotation through the adsorption cycles of all the vessels. Use

of a testing or monitoring period that does not correspond to an integral number of adsorber vessel cycles or system rotations could bias the results slightly in either direction. Efficiencies would be biased high if the test run or monitoring period did not include the elevated emissions typical at the beginning and end of a vessel's adsorption cycle; efficiencies would be biased low if the period included a disproportionate number of these emission peaks.

The revised carbon adsorption system performance testing provisions include separate requirements for systems with a single common exhaust stack and for systems with individual stacks for each adsorber vessel. The Agency believes that a common exhaust stack allows simpler performance testing that is more representative of the entire system's performance but has included provisions for individual exhaust stacks because this is currently the more typical configuration.

For adsorption systems with a common exhaust stack serving all the adsorber vessels, the entire system must be tested. Three test runs are required; each run must correspond to one or more complete rotations through the sequential adsorption cycles of all the adsorber vessels.

For adsorption systems with individual exhaust stacks, each adsorber vessel must be tested individually. Three test runs are required for each vessel; each run must correspond to one or more complete adsorption cycles. A procedure has been added to the compliance provisions for computing a system efficiency from the individual adsorber vessel efficiencies.

The final adsorber monitoring provisions parallel the final performance testing provisions. Again, separate provisions apply to systems with a common exhaust stack and those with individual stacks.No increase in monitoring costs is anticipated.

For adsorption systems with a common exhaust stack, a monitoring device must be installed on the common exhaust stack and one also may be installed on the common inlet duct. The owner or operator must report each occurrence when the average emission level or system efficiency (depending on whether the outlet only, or the inlet and outlet gas streams are monitored) over three successive system rotations varies outside the specified range.

For adsorption systems with individual vessel exhaust stacks, a monitoring device must be installed on each individual exhaust stack, and a monitoring device also may be installed on the common inlet duct or on each individual inlet duct. Each adsorber vessel must be monitored for a minimum of one complete adsorption cycle per day. A 3-day rolling average emission level or efficiency for each vessel (depending on whether the outlet only, or the inlet and outlet gas streams are monitored) must be computed each day from the daily averages, and these 3-day rolling averages must be reported when they vary outside the specified ranges.

Significant changes also have been made to the standards as a result of comments on the costs involved in retrofitting modified or reconstructed equipment. Several companies submitted modification scenarios that were evaluated by the Agency. It was concluded that in some cases, the costs to meet the proposed standards would be unreasonable for a national standard in light of the relatively small reduction in emissions obtained. This finding has prompted changes to the standards for both mix equipment and coating operations.

New mix equipment that is constructed with concurrent construction of a new VOC control device (other than a condenser) on a magnetic tape coating operation at the plant requires the installation and use of covers on each piece of mix equipment and the venting of the equipment to a 95 percent efficient control device. The wording of this standard has been modified to reflect more closely the practical application of BDT for this category of mix equipment. Construction of the control device is considered concurrent if it occurs within the period beginning 6 months before and ending 2 years after construction of the mix equipment. All modified or reconstructed mix equipment, new mix equipment that is constructed without concurrent construction of a control device, and new mix equipment that is constructed with concurrent construction of a condenser is simply required to be fitted with covers alone or fitted with covers and vented to a control device. Venting of emissions to a control device is not required on new mix equipment constructed with concurrent construction of a condenser because the moist, intermittent, low-concentration airstreams from mix equipment are incompatible with the operation of a closed-loop condenser on a drying oven.

The standards applicable to new coating operations remain unchanged from those proposed. The same is true of modified or reconstructed coating operations recovering or destroying less than 90 percent of the VOC applied at the coating applicator prior to modification or reconstruction. However, an existing coating operation that demonstrates recovery or destruction efficiency equal to or greater than 90 percent will be required only to maintain the existing level of control or 93 percent, whichever is lower, upon modification or reconstruction. If a new control device is subsequently added to a modified or reconstructed coating operation, the new control device must be 95 percent efficient. Also, if a higher overall control efficiency is achieved with the new control device, this higher level of control or 93 percent, whichever is lower, must be maintained. In addition, modified or reconstructed coating operations utilizing less than 370 m^3 of solvent annually will be subject only to certain recordkeeping and reporting requirements. Appropriate revisions have been made to the regulation reflecting these changes.

The major comments and responses are summarized in this preamble. Most of the comment letters contained multiple comments. The comments have been divided into the following areas: Level of the Standard, Best Demonstrated Technology, Affected Facilities and Modification and Reconstruction, Solvent Storage Tanks, Compliance Provisions, Cost and Economic Assumptions and Impacts, and Suspension of the Standards. All comments and responses are included in the promulgation BID.

A. Level of the Standard

Two commenters said that EPA did not properly consider the normal process variability associated with carbon adsorbers in proposing a standard requiring 93 percent control of the coating operation. One commenter reviewed the long-term operating data for three carbon adsorbers presented in Tables C–6 and C–8 of the proposal BID and concluded that the standard deviation for all three systems exceeds 2 percent. According to this commenter, if the long-term operational variability results in a normal distribution of monthly measurements, two-thirds of all results would be expected to be within plus or minus one standard deviation from the mean, and 95.5 percent of all results would fall within plus or minus two standard deviations from the mean. The commenter concluded that for a control system functioning at an average long-term efficiency of 95 percent and with a standard deviation of 2 percent, a point would be expected to fall below 91 percent about once every 4 years. If so, a 100 percent efficient capture device ducting emissions to a control device with a long-term average efficiency of 95 percent would be expected to fail the

proposed standard of 93 percent control efficiency for each and every month at least once and possibly twice every year. The two commenters recommended that the standard be established at 90 percent for the coating operation in order to take process variability into account.

The commenter is correct in stating that the standard deviations of the monthly efficiency data presented in Tables C–6 and C–8 of the proposal BID exceed 2 percent. The EPA undertook additional investigation into the circumstances of the reported efficiencies to determine if these variations were indeed the result of normal process variability.

The data in Table C–6 are from an IBM Corporation facility. A representative of IBM Corporation indicated that the first 4 months of data listed in Table C–6 (January through April 1982) coincide with the startup phase of both the carbon adsorber and the process equipment it serves. These months should, therefore, be deleted from consideration of the normal variability of the system. The data from the remaining 8 months in 1982 have a mean efficiency of 98.7 percent with a standard deviation of 0.53 percent. Assuming a normal distribution of monthly measurements, the probability of this carbon adsorber falling below an efficiency of 95 percent due to random variability would be less than 10^{-9}, i.e., one chance in a billion. These data show that with the use of BDT, i.e., a total enclosure and a carbon adsorber, the standard of 93 percent overall reduction is achievable.

Information on this subject also was sought from carbon adsorber manufacturers. The representatives unanimously agreed that if properly designed and operated, fixed-bed carbon adsorption systems can achieve efficiencies of 95 percent or above at all times. The operation of such systems must be coordinated with production, and adsorption/desorption cycles must be based on monitored outlet concentrations rather than elapsed time. Also, a program of regular maintenance must be established and carried out. Magnetic tape manufacturers adhering to these operation and maintenance principles should have little difficulty maintaining the necessary adsorber efficiency.

In light of the information at hand, EPA has determined that proper consideration has been given to carbon adsorber performance capabilities. The data from the industry derived from a period of normal operation indicate that continuous long-term efficiency in excess of 95 percent is achievable even with variations in operation. Thus, based on these data, which vendors support, the Agency concludes that the standard as proposed provides sufficient margin to account for the normal variability of control devices.

One commenter questioned whether any supporting data exist for the Agency's position that 95 percent VOC removal efficiency can be achieved continuously by carbon adsorption systems over all averaging periods, including short-term periods. The commenter submitted information indicating that 24-hour averages of efficiency of his adsorption system vary dramatically from day to day. Days when the average efficiency was above 95 percent were followed quickly by days with an average efficiency of less than 90 percent. It was this information that caused the commenter to question the Agency's decision to determine compliance and assess adsorber operation and maintenance based on short-term measurements of adsorber performance.

In response to this comment, EPA has evaluated existing short-term performance data; collected additional design, operation, and performance data from plants inside and outside the magnetic tape industry; and reexamined, with the help of carbon manufacturers and custom carbon adsorption equipment designers, the elements that could affect short-term adsorber efficiency. This analysis has reinforced the Agency's original conclusion that a properly designed, operated, and maintained carbon adsorption system can continuously maintain a VOC removal efficiency of 95 percent or greater. The promulgation BID, Section 2.1.2, includes a detailed technical discussion of the issues raised by the commenter, and the data are in the project docket.

The Agency's analysis is based on the theory, design, and operation of carbon adsorption systems. It is well recognized in carbon adsorption theory that the affinity of activated carbon for organics is so great that carbon will collect essentially all organics from an airstream for a period of time. As the carbon begins to saturate, it will allow organics to escape (or break through). For adsorber vessels containing fresh (virgin) carbon, the quantity of organic-laden gases that may be treated and the time before breakthrough are functions of the carbon bed design and size. As the carbon undergoes successive cycles of adsorption and regenerating, fouling gradually decreases the active sites within the carbon bed available for adsorbing organics. This process reduces the total amount of organics the carbon bed will adsorb in a single adsorption cycle (the "working capacity" of the bed). If the operator does not coincidentally reduce the duration of the adsorption cycle, the amount of organic allowed to pass through the system increases greatly as the bed operates in a post-breakthrough period. In such cases, the average efficiency over the adsorption cycle will drop significantly. Therefore, the air pollution control efficiency is a function of how long the carbon bed remains in service after breakthrough and before regeneration, and not necessarily the age of the carbon bed or its remaining working capacity. In a properly designed and operated adsorber, the volume of the carbon beds and the duration of the adsorption periods between regeneration cycles are established to accommodate the reduction in working capacity that occurs over time.

In actual operation, a properly designed adsorber vessel will achieve exceedingly high (99 percent) overall efficiency during the bulk of its adsorption cycle. Only after breakthrough does the instantaneous efficiency fall enough to influence the average efficiency of the entire cycle. Through proper operation and monitoring, breakthrough can be anticipated, and the adsorber vessel removed from adsorption service at or prior to breakthrough, resulting in a high average efficiency over the adsorption cycle. Continuous monitoring of the outlet concentration of organics from each bed provides a means of determining the appropriate moment to remove a bed from adsorption service regardless of the amount of time it takes to reach breakthrough for a particular adsorption cycle.

In summary, the performance factors that affect the efficiency of a carbon adsorber are controllable, and the system can be properly designed to handle the organic material actually delivered to it. A sudden or erratic decrease in the efficiency with which an adsorber removes organics from an airstream is a result of improper design, operation, and/or maintenance.

Because the carbon adsorber performance data supplied by the commenter have been claimed to be confidential, no specific details about the commenter's system are presented in this preamble or in the promulgation BID. The data were submitted after the comment period had closed. Nevertheless, a detailed study was conducted as a result of the comment, and the nonconfidential results of this study are discussed in more detail in the BID. In general, the carbon adsorber

system cited by the commenters to support their claims is significantly underdesigned for the actual solvent loading it is required to control. This results in the system being operated a significant portion of the time when the solvent-laden air (SLA) has already broken through one or more of the carbon beds. As a result, this system shows significantly reduced efficiency and also significant variations in efficiency from day to day and cycle to cycle. There is no evidence to show that the poor performance of this system stems from any inherent difficulty in absorbing the particular solvent blend in use. Therefore, the Agency has concluded that those data are not representative of a properly designed, operated, and maintained system and that the erratic performance of the commenter's adsorption system can be traced to these problems.

The Agency has found no basis for concluding that the standard cannot be achieved continuously and, hence, over both short-term and long-term averaging periods. For this reason, the standard requiring 93 percent overall VOC emission reduction for new coating operations and most modified or reconstructed coating operations has not been revised. However, review of information obtained in response to the comment has led the Agency to revise the averaging periods for the testing and monitoring requirements from periods of a fixed duration to periods that include an integral number of complete adsorber cycles. The revised periods remain short-term averaging periods. It is believed that these revisions will result in more accurate characterization of the performance of carbon adsorption systems. The new requirements are included in the promulgated standard and are discussed in more detail elsewhere in this preamble (see the general section on changes since proposal located at the beginning of Section VIII).

Three commenters noted that the standard for the pressure sensitive tapes and labels (PSTL) industry, which includes the plant that the Agency is relying on for technology transfer, was set at only 90 percent control. One commenter indicated that the standard for the magnetic tape industry should, therefore, be no higher. Another commenter believes that the standard should be less than 90 percent. The third commenter stated that EPA must justify the imposition of a stricter standard on the magnetic tape manufacturing industry.

The PSTL data were used in the development of the magnetic tape manufacturing industry standard because these two industries are similar both in the processes used and in the controls determined to be BDT. However, some products manufactured at PSTL plants retain sufficient solvent in the dried web such that 93 percent control of applied solvent was judged not to be achievable in all cases. There is virtually no solvent retained in magnetic tape products after they leave the drying ovens; thus, all the applied solvent is available for capture by a well-designed capture device. If, however, an owner or operator submits specific information to the Administrator that justifies the need for retained solvent in the product, the revised standards now allow the fraction of retained solvent to be included in the material balance calculation as VOC recovered rather than as a fugitive emission. In addition, data gathered on the level of control of coating operations achieved at existing magnetic tape plants support the level of the promulgated standard. (Additional detail on this subject is presented in Section 2.1 of the promulgation BID. See section VIII.C of this preamble for further discussion of the level of control on new and modified coating operations.)

B. Best Demonstrated Technology

1. Coating Operations

Several commenters stated that magnetic tape products, particularly computer tape, cannot be produced in the type of negative-pressure total enclosure required by the proposed standard for the coating operation. One commenter stated that neither the proposal BID nor the proposal preamble adequately addresses the quality issue and that there is no information in the proposal BID about the actual use of negative-pressure enclosures at magnetic tape plants.

A meeting of EPA and industry representatives was held on May 7, 1986, to discuss industry concerns with the proposed NSPS. Attendees from industry included most of those who presented comments at the public hearing (IV–F–1). At the meeting, industry representatives agreed that all types of magnetic tapes can be manufactured at facilities equipped with BDT. The concern expressed by industry was the cost to achieve the standard at modified and reconstructed facilities (see section VIII.C), not the achievement of 93 percent control or problems with product quality. The air handling techniques designated as BDT are currently in use in the magnetic tape industry, including at least two plants manufacturing computer tape. On this basis, the Agency concludes that BDT is practical and that the standard is technologically achievable for all segments of this industry.

Because of the concerns for product quality discussed above, some commenters said that BDT has not been demonstrated for the magnetic tape industry and that extensive development costs would be required by the industry to meet the proposed standard. One commenter said that the standards should be rewritten "using a BDT from the magnetic tape industry" (i.e., control of the oven only) and that "different BDT's might be needed for each segment" of the industry. Other commenters said that the PSTL plant that provided the data supporting the proposed standard would not be capable of producing high-quality magnetic tape and should, therefore, not be considered an adequate demonstration of BDT for the magnetic tape industry. One commenter said that according to his review of previous court cases, technology transfer should be based on specific equipment rather than a process.

This last commenter was contacted for additional information about the court cases to which he referred in his comments. He was unable to supply specific citations. The Agency has located several decisions that deal in part with appropriate considerations in the determination of BDT. In no case was the issue raised concerning a distinction between processes and specific pieces of equipment. The overriding concern voiced in these decisions is that the Administrator arrive at an achievable standard through a reasonable determination of BDT.

The NSPS for the magnetic tape manufacturing industry is an achievable standard based on a reasonably determined BDT. The control technology designated as BDT has been demonstrated at a PSTL plant to achieve the percent reduction required by this standard. These air handling and control technologies are currently in use in the magnetic tape industry, including the computer tape sector where product quality is critical. The equipment, solvents, and processes used in these two web coating industries are similar and would be expected to produce similar SLA streams. A technological system that can control the SLA streams of the PSTL industry to the required degree can be reasonably expected to do the same in the magnetic tape industry. Thus, having made a reasonable determination of BDT and

formulated an achievable standard, the Agency has satisfied the requirements mandated by the courts. (See related discussion of the level of the standard in section VIII.A of this preamble and the issue of product quality above. Additional detail on this subject is contained in section 2.2 of the promulgation BID.)

2. Mix Equipment

Two commenters addressed the selection of carbon adsorption as BDT for mix room emissions. According to one commenter the cost to install control equipment is not justified, particularly for an existing facility, because only 3 percent of plant-wide emissions are from the mix room. The commenter recommended that BDT for mix equipment be redefined as tight covers. A second commenter said that control costs for a separate carbon adsorber are significantly underestimated in the BID and result in unrealistic cost-effectiveness values.

The Agency's cost analysis presented in the proposal BID demonstrated that the cost to control mix room emissions with an add-on control device was reasonable only if the same control device could be used to control coating operation emissions and mix room emissions. The standard for the mix room and the proposed affected facility definition presented at proposal were selected so that carbon adsorption control of mix room emissions would occur only when there was also an affected coating operation, and, thus, emissions from the two sources could be controlled by the same control device. At that time, growth in the industry primarily resulted from construction of new lines. Thus, new or existing mix equipment would become subject to the NSPS when a new coating operation and its control devices were being constructed and capacity for the mix equipment could be included in the control device design.

Since proposal, EPA has accepted the industry's allegation that growth in the industry will occur primarily from modification or reconstruction of existing lines rather than construction of new lines (see section VIII.C). In this situation, existing mix equipment may be modified when there is no construction of a new control device and the existing control device may not have sufficient extra capacity to incorporate mix room emissions. Two modification scenarios were provided by industry after the public hearing, and the site-specific control costs were determined not to be reasonable because of high airflow rates. Older pieces of mix equipment frequently have makeshift covers, and dry ingredients are added by open pouring rather than by closed pumping systems. Thus, older, modified mix equipment may require higher airflows than new mix equipment to keep the VOC concentrations in the work area at safe levels (below the threshold limit value and the lower explosive limit). These high airflows further exacerbate the problem of limited control device capacity.

The Agency's original analysis of BDT and the mix room standard at proposal were never intended to include the scenario of controlling the entire room ventilation air from the mix room. The original analysis was based on new mix equipment, which has covers that can be easily adapted to ventilation to a carbon adsorber at low airflows. After discussions with personnel at the two plants submitting comments, the Agency has concluded that there is no practical and cost-effective way to retrofit this type of low-airflow capture device to all existing modified mix equipment. Therefore, the Agency agrees that BDT for modified mix equipment should be covers instead of ventilation to a control device. However, the Agency still believes that control of new mix equipment can be achieved at a reasonable cost by carbon adsorption when a new control device is being constructed on a magnetic tape coating operation at the plant and the SLA from the mix equipment is considered in the design of the device.

The standard has been changed to require covers or covers and venting to a control device on all modified or reconstructed mix equipment and on new mix equipment when there is no concurrent construction of a control device on a coating operation at the plant or when the control device installed concurrently is a condenser. Covers alone are expected to reduce emissions by approximately 40 percent compared to open mix equipment. The use of covers and venting to a control device will provide additional control beyond 40 percent. If new mix equipment is installed at a time when there is concurrent construction of a control device (other than a condenser) on a coating operation at the plant, covers must be used on the mix equipment, and emissions must be vented to a control device that is 95 percent efficient. The Agency selected 95 percent for the control efficiency because carbon adsorption is part of the BDT selected for this industry. In its review of the operating data for carbon adsorbers in this and other industries, the Agency has concluded that 95 percent is achievable on a long-term continuous basis for a properly designed device. Thus, any new carbon adsorber should be capable of maintaining this level of control. "Concurrent" means within the period from 6 months before until 2 years after the installation of the mix equipment. This period is designated because it is consistent with the normal planning and purchase cycles for equipment of this type. The 2-year period also coincides with the period for which records required under this standard must be retained. A definition of covers and compliance and reporting requirements for the covers have been added to the regulation.

A cover is defined as a device that (1) lies over the equipment opening, (2) either extends at least 2 cm beyond the rim of the equipment or is attached to the rim, (3) maintains contact with the rim for the entire perimeter, and (4) is opened as seldom as possible. A nonpermanent cover such as a polyethylene sheet may be used if it meets these criteria. A notification of actual startup is the only reporting requirement; all other monitoring, recordkeeping, and reporting requirements have been waived for plants with only mix equipment requiring covers.

According to one commenter, there is a strong bias in the proposal BID toward carbon adsorption control of mix room emissions that is unwarranted because of the problems that are encountered with the use of this technology to recover some solvents. In particular, cyclohexanone is unsuited for carbon bed recovery because of potential hot spot formation that would result in bed fires and plugging of the bed by oxidation products. According to the commenter, emissions from new or modified mix equipment cannot be added to the condenser controlling oven emissions without upsetting oven control because the oven and condenser have a closed-loop, steady-state gas balance that would be disrupted by intermittent and variable airflow and low VOC levels from the mix room.

The Agency reviewed the available data on types of solvent and associated control devices used in this industry. Plants using cyclohexanone as part of a blend of solvents have successfully controlled mix room and oven emissions with carbon adsorbers. However, those plants electing to use pure cyclohexanone have installed condensers for control of oven emissions. According to one vendor, bed fires did, in fact, occur in the carbon adsorber installed by his company at a magnetic tape plant using pure cyclohexanone. The vendors of

condensers used in this industry have agreed with the commenters' statements regarding the impact of venting mix room emissions to a closed-loop condenser on the oven. The moist, intermittent SLA streams from mix equipment are incompatible with finely tuned closed-loop oven/condenser systems. Use of a separate control device to control mix equipment emissions has been found not to be cost effective. Based on these data, the Agency will allow a different level of control for those plants using a condenser to control coating operation emissions. For such plants, covers that meet specific criteria must be used to control VOC emissions.

C. Affected Facilities and Modification and Reconstruction

Many comments were received on these interrelated subjects. Some commenters suggested that the affected facility definition be changed to separate mix equipment from coating operations. They were concerned that minor modifications to mix equipment would make existing coating operations subject to the NSPS, particularly at those plants that are already so highly controlled that an emission offset could not be achieved. It would also be difficult to determine the "comparable" capital value of an entirely new "facility" to determine if reconstruction has occurred when common mix equipment serves two coating operations.

These concerns were brought about by changes in this industry. At the time leading up to proposal, it was indicated by the industry that expansion would occur through the construction of new coating lines. However, after proposal, several commenters stated that the current trend is to modify existing equipment. These commenters stated that the costs to retrofit improved controls to existing equipment would be excessive and have not been adequately evaluated. Several suggested that the affected facility definition be changed to exclude existing equipment.

Six commenters submitted actual or theoretical scenarios for coating line modifications at their plants and the necessary control system changes and costs. Three of these scenarios involved changes to the coating line to increase production speed, two scenarios involved changes in the mix room equipment, and one scenario did not specify the type of modification. Four of the scenarios included the installation of new control devices for the entire modified line.

In addition to the six modification scenarios submitted by industry, EPA surveyed the remaining plants in the industry and confirmed that the industry now believes that growth, at least in the next several years, will occur primarily as a result of modifications to both mix equipment and coating operations. The Agency performed detailed site-specific analyses of the control costs for the modification scenarios supplied by industry (see docket item IV–B–12). The details of these scenarios and the cost analyses will not be presented here because confidential treatment of all of the information submitted was requested by the plants. Three of the scenarios are likely modifications as defined under the criteria in 40 CFR 60.14. One scenario is not likely to be a modification. The remaining two scenarios were entirely hypothetical, and not enough information could be provided to make a modification determination despite the Agency's requests for further information. However, EPA conducted a cost analysis on the five scenarios for which sufficient data were supplied on the assumption that, even if the specific case was not a modification, the general concept might be valid in other cases. The cost analyses were performed for the control strategies presented by the commenters and for alternative strategies. Each cost analysis was specific for the operating practices and equipment at the plant.

As discussed in section VIII.B, based on these analyses and information from plant personnel regarding modification of mix equipment, EPA has revised BDT to be covers or covers and venting to a control device for modified mix equipment, new mix equipment at plants without concurrent construction of a control device, and for new mix equipment at plants with concurrent construction of a condenser. The BDT for new mix equipment at plants with concurrent construction of a control device (other than a condenser) on a magnetic tape coating operation remains control by that device. The control device must be operated at 95 percent efficiency. Because the standard for mix equipment is an equipment standard, these new BDT determinations are also the new standards for the mix equipment.

Three scenarios concerned increasing the level of control on the coating operation after a modification. The analyses showed that if the baseline overall level of control on an existing coating operation is 83 to 88 percent, the cost to achieve 93 percent overall control after modification is reasonable even if a new control device must be built. However, for the plant with a baseline overall level of control of 90 percent or greater, the cost of adding any control equipment, even a small carbon adsorber to control only the incremental airflow, is unreasonable. Based on these results, the Agency has revised the regulation to include different standards for new and modified or reconstructed coating operations. New coating operations and modified or reconstructed coating operations with a baseline overall level of control less than 90 percent prior to making the change must still achieve 93 percent overall control of applied solvent (see section VIII.A for the justification of this level). If an existing coating operation can be demonstrated to achieve 90 percent overall control or better, it must maintain the existing overall level of control or 93 percent, whichever is lower, following modification or reconstruction. If, following a modification or reconstruction, a new control device is installed, the final standards require that the control device be at least 95 percent efficient and that the overall level of control be maintained at or above the level demonstrated prior to modification or reconstruction. However, if the overall level of control demonstrated with the new control device is higher than was previously demonstrated with the old control device, then the higher overall level of control (up to 93 percent) must continue to be met. With the replacement of the control device, the cost of controlling the incremental emissions is reasonable.

The methods of demonstrating the baseline level of control prior to modification or reconstruction are (1) the performance tests described in the regulation or (2) the use of a total enclosure that meets the new definition (see Section VIII.E) and a control device that is demonstrated by the procedures in the regulation to be at least 92 percent efficient. The Agency considered requiring that the lower overall level of control required at modified facilities be contingent on the demonstration of both 90 percent overall control or greater and insufficient control device capacity to accommodate the increased VOC loading due to the modification. However, no practical method was found that industry and compliance officers could use to make capacity determinations easily and accurately.

An annual solvent utilization cutoff of 38 m^3 for coating lines was included in the NSPS at proposal. The 38 m^3 cutoff is the annual solvent throughput below which the control costs for new lines become unreasonable relative to the emission reduction achieved. This cutoff has been retained for new coating

operations in the final rule. However, the information received from industry on the compliance costs at modified or reconstructed coating operations prompted a review of the cutoff for these facilities. The EPA used cost information, emission data, and plant parameters for model lines developed prior to proposal plus information supplied by industry to determine the cutoff for modified or reconstructed lines. Even when the emission reduction achieved by a modified or reconstructed line is the same as that achieved by a new line, the incremental control costs above baseline can be greater for modified lines than for new lines. For new lines, most of the capital costs are incurred in reaching the baseline level of control, and only a small additional cost is needed to achieve the extra control required by the recommended standard. For modified or reconstructed lines, a complete new control system may be required, and the total cost of that system must be compared only to the incremental emission reduction above the baseline level of control. Therefore, the annual solvent throughput at which control costs are reasonable may be higher for modified lines than for new lines. Based on this analysis, an annual solvent utilization cutoff of 370 m^3 has been added for modified or reconstructed coating operations (see docket item IV–B–7). Of the projected eight modified or reconstructed lines that would otherwise be required to reduce emissions by 1991, only one would be below this annual solvent use cutoff.

At proposal, each coating operation and its associated mix equipment were defined as a single affected facility. This definition was expected to result in a greater emission reduction than separate affected facilities for two reasons. First, it allowed the selection of common carbon adsorption control (i.e., a carbon adsorber that controls both mix room and coating operation emissions) as BDT, which would result in 93 and 95 percent control of emissions from the coating operation and mix room, respectively. (A separate carbon adsorber for mix room emissions was found not to be cost effective.) Second, the definition would have resulted in a greater emission reduction than separate affected facilities because more mix equipment would be brought under the standard at this high level of control, i.e., when a coating operation was constructed or modified, all new and existing associated mix equipment would become affected.

As described in section VIII.B, the Agency has revised its BDT determination for mix equipment because it has been demonstrated that the cost and feasibility of retrofitting carbon adsorption control to mix equipment may not always be reasonable. As a result of the revised standards, emissions from affected coating operations will be 90 or 93 percent controlled, and emissions from most affected mix equipment will be about 40 percent controlled through the installation and use of covers. Because the level of control required by the standard for the coating operation is more than twice that required for the mix equipment, the greatest overall emission reduction will be achieved when the greatest possible number of coating operations become subject to the standard. Therefore, the Agency has selected the affected facility definition that would achieve this result. The Agency has decided to separate the coating operation and mix equipment into two separate affected facilities. This separation reduces the capital expenditure necessary to qualify as a modification or reconstruction, which increases the likelihood that a facility would be subject to the modification or reconstruction provisions. The following factors raised by commenters also were considered in changing the affected facility definition: (1) Interpretation of the regulation, particularly compliance, modification, and reconstruction determinations, is more straightforward and (2) the possibility is eliminated that a modification to one coating operation may cause an unchanged coating operation to become affected because they share common mix equipment, a result that was never intended with the definition at proposal.

For the mix equipment affected facility, the following possible definitions were considered: (1) Each piece of mix equipment and (2) all mix equipment at a plant. Under the presumption that the narrowest definition is the most desirable because it will result in including the most modifications and reconstructions and, thus, the greatest emission reductions, the affected facility was defined as individual mix tanks. This definition will also make compliance, modification, and reconstruction determinations easier at plants with many pieces of mix equipment.

The commenters' concerns that very minor modifications would cause existing facilities to become subject to the standards are unfounded. As discussed on the proposal BID, an increase in production that is accomplished without a capital expenditure is not considered a modification. A "capital expenditure" is defined in 40 CFR 60.2 as an expenditure exceeding the product of the applicable "annual asset guideline repair allowance percentage" (specified in the latest addition of Internal Revenue Service Publication 534) and the existing facility's fixed capital cost. In addition, when emissions elsewhere within the same affected facility can be reduced by an amount equal to or greater than the increase caused by a modification, the facility does not become subject to the NSPS.

Additional detail on the comments received on these subjects and the Agency's response is contained in Section 2.3 of the promulgation BID.

D. Solvent Storage Tanks

Five commenters questioned several aspects of the storage tank cost analysis and proposed standard. Comments were made on the selection of the baseline tank, the cost of a pressure vessel relative to an atmospheric tank, the safety of pressure vessels, the justification for submerged fill pipes, underground tanks, selection of BDT, and the level of the standard. The details of these comments can be found in the docket.

Based on the cost issues raised by the commenters, a cost reevaluation was performed. The details of this cost analysis are contained in docket item IV–B–2. The new cost analysis demonstrates that there is no cost-effective control technology for solvent storage tanks in the magnetic tape manufacturing industry. As a result, a notice was published in the **Federal Register** on November 25, 1986, withdrawing the proposed standard for storage tanks (51 FR 42800). This notice was published separately rather than at the time of promulgation of the revised regulation so that facilities would not needlessly install tanks complying with the proposed standard in the interim between proposal and promulgation.

E. Compliance Provisions

Two commenters requested that EPA provide the criteria that would be used by the Administrator to evaluate enclosure designs submitted by industry as part of complying with the alternative means of emission limitation. One commenter noted that the technologies for testing such a total equipment enclosure do not exist or are not practical and that the standard as written is not capable of being administered.

The Agency agrees with the commenters that more complete criteria for total enclosures are needed.

Therefore, total enclosure requirements were developed after a review of air handling techniques already in use in this and other industries. The suggested physical structure of the total enclosure was developed from EPA's experience with enclosures in a wide range of industries. The relative positions of ducts and openings and the locations of measurement points were developed from this experience and from industrial hygiene measurement requirements.

The requirements have been included in the final rule. Those enclosures that conform to the requirements will receive automatic approval as total enclosures. An enclosure that does not conform to the requirements may be approved by the Administrator on a case-by-case basis provided that it is demonstrated that all VOC emissions from the coating operation are contained by the enclosure and vented to the control device. It should be noted that the Agency does not intend to limit the possible configurations of total enclosures. A total enclosure could range from a close-fitting structure around the application/flashoff area coupled with the drying oven all the way up to the room (or entire plant) housing the coating operation. Thus, where product quality concerns dictate an enclosure under positive pressure immediately around the coating operation, this enclosure may, in turn, be contained within a larger, negative-pressure total enclosure.

The current requirements and their bases are discussed below. The Agency is continuing its investigation of appropriate requirements for total enclosures and the related procedure for capture efficiency testing using temporary enclosures. The most up-to-date guidance on these matters may be obtained by contacting the individuals listed in this preamble under the heading "**FOR FURTHER INFORMATION CONTACT.**" If necessary, the total enclosure requirements in the rule will be revised during the required 4-year reviews.

The Agency has selected average face velocity across the natural draft openings as the best indicator of complete capture. Natural draft openings are defined as any openings in the total enclosure that remain open during operation of the facility and that are not connected to a duct in which a fan is installed. An example of a natural draft opening is a slot where the base film (or "web") enters the total enclosure. The inward face velocity of the enclosure must be sufficient to overcome outward velocity due to dispersive forces. Because face velocity cannot be measured directly and accurately while the enclosure is in operation, the Agency has chosen to specify that an average face velocity be calculated using flow measurements in the forced makeup air ducts and the outlet ducts. The American Conference of Governmental Industrial Hygienists (ACGIH) recommends minimum average face velocities of 2,700 to 3,600 meters per hour (m/h) for enclosures around belt conveyors, bins/hoppers, and packaging machines, and through paint spray booths. The Agency has selected an average face velocity of at least 3,600 m/h as the requirement for natural draft openings in total enclosures in this industry. A test procedure based on EPA methods is included in the compliance provisions of the promulgated regulation for determination of the average face velocity across the natural draft openings.

It is expected that most enclosures can easily meet this requirement. For instance, the "typical" model coating operation developed by EPA for impact analyses prior to proposal coats a web that is 0.66 m wide. This facility would need a net exhaust from the enclosure of only 0.30 standard m^3 per second (m^3/s) to maintain an average face velocity of 3,600 m/h across entrance and exit web slots measuring 1 m by 0.15 m. This can easily be accomplished with the exhaust from the drying oven to the control device, which is expected to be on the order of 2.6 standard m^3/s. In the event that an enclosure does not meet this requirement, the owner or operator can apply to the Administrator for approval on a case-by-case basis.

When the static pressure inside the enclosure is negative with respect to the static pressure outside the enclosure, an inward flow will result. However, the static pressure differential that results in an average face velocity of 3,600 m/h is so small (approximately 1 pascal [Pa] across a flanged opening) that motion near a natural draft opening could be enough to overcome this pressure differential, resulting in outward flow. For this reason, the requirements state that when the average face velocity is between 3,600 m/h and 9,000 m/h, continuous inward flow must be verified during the determination of average face velocity by observation using smoke tubes, streamers, tracer gases, or other means approved by the Administrator. Above 9,000 m/h, the average face velocity recommended by ACGIH when emissions are actively generated into a turbulent area, the static pressure differential is high enough (approximately 6.5 Pa across a flanged opening) that continuous inward flow can be assumed without verification.

To differentiate a partial enclosure and a total enclosure, it is necessary to limit the total area of the draft openings (e.g., web slots). The Agency has included requirements in the final rule that restrict the total area of the natural draft openings and the locations of such openings with respect to any source of emissions within the enclosure. The maintenance of a prescribed face velocity through a large opening or through an opening very near a source of emissions would not ensure complete capture because of the increased possibility of localized airflow patterns such as backwash, channeling, and eddies that could carry VOC out of the enclosure. (There is no need to set size restrictions or minimum face velocity requirements for the forced makeup air ducts because the purpose of these ducts is to direct air into the enclosure, and sufficient face velocity will be maintained.) In addition, the frequency with which access doors into the enclosure are opened must be kept at a minimum.

The requirements based on these principles require that the total area of all natural draft openings not exceed 5 percent of the total surface area of the total enclosure's walls, floor, and ceiling. Any sources of emissions within the enclosure, such as the coater, must be at least four equivalent diameters away from each natural draft opening. (The equivalent diameter of an opening is four times the area of the opening divided by its perimeter.) Access doors must be tightly closed during process operation. Brief, occasional openings of such doors to accommodate process equipment adjustments are acceptable, but, if such openings are routine or if an access door remains open during the entire operation, the access door must be considered a natural draft opening. The average inward face velocity across the natural draft openings of the enclosure must be calculated including the area of such access doors.

The requirement that natural draft openings comprise a maximum of 5 percent of the surface area of the enclosure's walls, floor, and ceiling is expected to be easily met. The smallest enclosure would be a small structure around the application/flashoff area coupled with the drying oven. Entrance and exit web slots measuring 1 m by 0.15 m would be natural draft openings totaling 0.3 square meters (m^2). With these natural draft openings, an enclosure with a total surface area of 6 m^2 or more would meet the requirement. Any drying oven alone will exceed this

surface area. Coating operations that require additional natural draft openings (e.g., access doors that are routinely opened) may not meet this requirement as readily with such a small enclosure. However, such facilities can be contained in a larger total enclosure in which operators remain during operation of the facility. The natural draft openings in such an enclosure can easily be designed not to exceed 5 percent of the total surface area. In this configuration, the small structure immediately around the application/flashoff area would serve as a local ventilation system to ensure that the VOC concentration within the larger enclosure is maintained at safe levels. This larger type of enclosure also can readily be designed to comply with the requirements pertaining to distances between natural draft openings and VOC sources and to the opening of access doors. Alternatively, the owner or operator can gain approval of an enclosure that does not meet the requirements by demonstrating to the satisfaction of the Administrator that all VOC emissions from the coating operation are contained and vented to the control device.

Operation of the total enclosure also must be monitored. The final standards allow the owner or operator to select the most appropriate parameter to be monitored, subject to approval by the Administrator.

Based on the preceding discussion, the total enclosure definition; test procedure; and monitoring, recordkeeping, and reporting requirements described below have been added to the regulation.

1. Definition

A total enclosure is a structure that is constructed around a source of emissions so that all VOC emissions are collected and exhausted through a stack or duct. With a total enclosure, there will be no fugitive emissions, only stack emissions. The only openings in a total enclosure are forced makeup air and exhaust ducts and any natural draft openings such as those that allow raw materials to enter and exit the enclosure for processing. All access doors or windows are closed during routine operation of the enclosed source. (Otherwise they are considered natural draft openings.) The drying oven itself may be part of the total enclosure. A permanent enclosure that meets the requirements found in § 60.713(b)(5)(i) is assumed to be a total enclosure. (These requirements are discussed above.) The owner or operator of a permanent enclosure that does not meet the requirements may apply to the Administrator for approval of the enclosure as a total enclosure on a case-by-case basis. Such approval shall be granted upon a demonstration to the satisfaction of the Administrator that all VOC emissions are contained and vented to the control device.

2. Test Procedure

All forced-air inlet ducts to the enclosure and exhaust ducts from the enclosure will be tested according to EPA Methods 1 or 1A and 2, 2A, 2C, or 2D (40 CFR 60 Appendix A). These measurements will be made to determine (1) the amount of air evacuated from the enclosure (or any component within the enclosure) and (2) the amount of forced makeup air entering the enclosure. By subtracting (2) from (1), the value of the net airflow into the enclosure through the natural draft openings is obtained. When this net airflow is divided by the total area of all natural draft openings, the value of the average face velocity is determined. These measurements also indicate whether the static pressure within the enclosure is positive or negative. When the net airflow is positive, the enclosure static pressure is negative with respect to the exterior.

3. Monitoring, Recordkeeping, and Reporting

The owner or operator must submit a monitoring plan for the total enclosure along with notification of anticipated startup. The plan must identify the parameter to be monitored (e.g., the amperage of the exhaust fans or duct flow rates) and the methods for continuously monitoring the chosen parameter. All 3-hour periods during which the average monitor readings vary by 5 percent or more from the average value measured during the most recent performance test that demonstrated compliance must be reported.

One commenter raised concerns about the technical feasibility, accuracy, and cost of conducting the performance evaluations under the gaseous emissions options, particularly at plants with many coating lines and multiple-bed carbon adsorbers. The commenter questioned the accuracy of measurements taken in a temporary enclosure around the coater. The commenter also noted a problem in determining accurately the total VOC exiting a multiple-bed carbon adsorber because the VOC concentration in all the stacks would have to be measured and integrated over time to determine emissions from the recovery plant.

The performance test using gas-phase measurements for determining compliance is based on two independent measurements that may be conducted simultaneously. One measurement is capture efficiency or the efficiency of the VOC collection and containment device(s) around the affected facility. The other measurement is the efficiency of the control device. The product of these two efficiency measurements is the overall control system efficiency.

The measurement of capture efficiency is dependent on the ability to measure fugitive emissions. There are two methodological approaches. One approach would be to shut down all other sources of VOC that are located in the same room as the affected facility and continue to exhaust the fugitive emissions from the affected facility through the building ventilation system and other room exhausts such as ovens or roof fans. The preferred approach is to build a temporary enclosure around the coating operation and its VOC capture system and to discharge the fugitive emissions through a common stack so that all fugitive emissions can be measured simultaneously at a single point.

A temporary enclosure built to measure fugitive emissions must be constructed and ventilated so that it has minimal impact on the performance of the permanent VOC capture system. A temporary enclosure will be assumed to achieve total capture of fugitive VOC emissions if it conforms to the requirements for a total enclosure discussed above and if all natural draft openings are at least four duct or hood equivalent diameters away from each exhaust duct or hood. (This requirement is included to avoid drawing air through a nearby natural draft opening directly into the exhaust duct or hood. This sort of "short circuit" could (1) dilute the SLA vented to the control device, (2) allow stagnant areas to develop within the enclosure where the VOC concentration might build up to unsafe levels, and (3) preferentially influence the face velocities across the natural draft openings. With a distance of four equivalent diameters or more between the exhaust ducts or hoods and the natural draft openings, these potential problems will be minimized. In nearly all cases, a temporary enclosure can readily be designed to meet this requirement.) Alternatively, the owner or operator may apply to the Administrator for approval of his temporary enclosure on a case-by-case basis. The development of this capture efficiency test procedure is ongoing. Additional guidance on the design of a temporary enclosure may be obtained as

indicated above in the discussion of total enclosure requirements.

For the performance test, all emission streams including fugitive emissions must be transported through ducts or stacks suitable for conducting the gas-phase measurements of flow rate and VOC concentration. Once this requirement is met, every stream is subjected to the same battery of sampling and analytical tests. These tests are EPA methods that have been prescribed for compliance determinations in numerous other NSPS. The EPA has promulgated these methods with instructions for obtaining maximum accuracy and precision.

The cost of Method 25A and the complementary methods for determining the gas flow rate will probably range from $6,000 to $10,000 per stack. The cost of Method 18 or 25 will be somewhat higher. The cost of a temporary enclosure will vary depending on the complexity of the site and the design of the fugitive emission exhaust system.

The presence of a multiple-bed carbon adsorber will not introduce significant error into the test results. The performance testing provisions in the promulgated standards require that the test runs coincide with discrete adsorption cycles. Each bed of multiple-bed systems with individual exhaust stacks are to be tested individually. Also, in a properly operated system, a bed would not be desorbed in such a way as to direct the steam into the exhaust streams of the beds that are adsorbing. If residual humidity poses a problem, a drying agent can be used in the sample lines.

It is the Agency's determination that the test method described above and in the regulation provides an accurate means of determining compliance at a reasonable cost. In addition, each owner or operator has the option of selecting the alternative method of demonstrating compliance presented in § 60.713(b)(5), which is the installation of a permanent total enclosure and the ventilation of all emissions to a 95 percent efficient control device. Because owners or operators selecting this option must measure only total enclosure average face velocity (see previous comment) and the control device efficiency, the cost of a compliance test is reduced. Additional detail on this comment and response is contained in section 2.5 of the promulgation BID.

F. Cost and Economic Assumptions and Impacts

One commenter stated that the Agency has not adequately addressed the problems associated with the use of ketones by the magnetic tape industry. The commenter submitted data that, in the commenter's opinion, demonstrated the problems caused by the use of ketones. The commenter also implied that the variability in carbon adsorber performance is greater when ketones are present in the SLA stream and that ketones shorten the useful life of the carbon in adsorption systems, resulting in greater cost impacts attributable to the NSPS than indicated by the cost analysis carried out by EPA prior to proposal.

As a result of this comment, the Agency sought additional information on the effect of ketones in the SLA stream delivered to a carbon adsorber. Based on EPA's analysis and responses by designers of carbon adsorption systems, carbon manufacturers, and operators of adsorption systems, the Agency agrees that ketones (particularly cyclohexanone) appear to accelerate fouling in an adsorption bed. The accelerated fouling will reduce bed life and increase recovery costs above those experienced for other organics. Nevertheless, carbon adsorbers have been the control system of choice at a number of plants that use solvent mixtures containing ketones in the absence of an NSPS. The NSPS should place no additional demands on such systems which would significantly affect their useful life or cost. If the adsorber is properly designed and operated, recovery efficiency can be maintained above 95 percent in spite of accelerated fouling.

Accelerated fouling is caused by some ketones (particularly cyclohexanone) that react on the surface of the carbon in the bed, forming large molecules that are difficult to desorb. The result is an incremental reduction in the working capacity of the carbon which, when added to the normal incremental decay of working capacity, can significantly reduce the effective life of the carbon. However, this does not affect efficiency if the bed is placed in the regeneration cycle at the proper time. As the working capacity of the bed is reduced by fouling, a cycle change to regeneration that is initiated by a constant time interval rather than outlet concentration would result in an apparent, rapid degradation in the recovery efficiency of a carbon bed. The reason for this apparent degradation is that efficiency is a function of the time that elapses after breakthrough and before the adsorber vessel is switched off line. When accelerated fouling causes breakthrough to occur before the set time interval for switching adsorber vessels has passed, the efficiency averaged over the complete cycle falls off rapidly. Additional technical information on carbon bed fouling and its implications for carbon bed life and adsorber efficiency is included in the promulgation BID.

In a system where accelerated fouling occurs, the bed life will be a function of the rate of fouling and the capacity initially designed into the system. Although the exact mechanisms of accelerated fouling are poorly understood, the rate is probably dependent on the type and quantity of organic in the SLA stream, the regeneration procedures, and the type of carbon. Reports by this industry of bed lives as brief as 3 to 18 months when ketones are used indicate that the fouling rate is indeed greater than that commonly encountered when other solvents are used. Bed lives up to 10 years are commonly reported when solvents other than cyclohexanone are used.

Although reduced bed life need not affect the efficiency achieved by a properly designed and operated carbon adsorption system, it will affect the cost of operating the system. When the bed life is reduced, the annualized cost of carbon replacement will increase. As explained in the following discussion, essentially the same amount of cyclohexanone will be vented to the adsorber under the regulatory baseline (the typical SIP) as under the NSPS, so the reduction in bed life (and attendant increase in control costs) will also be the same in both cases. Thus, the cost effectiveness of the NSPS relative to the baseline regulation is not changed directly by the use of cyclohexanone.

However, as suggested by the commenter, the bed life may be reduced slightly under the NSPS relative to the baseline regulations. This effect can be examined in two ways, as discussed below.

The first approach is that of EPA's preproposal cost analysis. In that analysis, a carbon adsorber efficiency of 95 percent was assumed for both the baseline and NSPS cases. The difference in the overall control levels achieved by the two alternatives was assumed to result from greater capture efficiency achieved in the NSPS case by containing emissions from the application/flashoff area that would be emitted to the atmosphere as fugitive emissions in the baseline case. The increase in the mass of VOC vented to the adsorber under the NSPS as a result of increased capture efficiency (a maximum of about 10 percent) would be expected to reduce carbon bed life slightly through a small increase in the rate of fouling and a proportional reduction in the length of

the adsorption cycle prior to breakthrough.

The carbon fouling effect on the bed life would not be great. For those plants that use cyclohexanone, no appreciable change in the fouling rate would occur. The increased capture in the application/flashoff area would result in only a marginal increase in the quantity of cyclohexanone vented to the adsorber because cyclohexanone has a low vapor pressure and is emitted almost exclusively in the drying oven. (In fact, it is this slow drying property that makes cyclohexanone a desirable solvent for the magnetic tape manufacturing industry.) The contribution to the overall fouling rate from the increase in the mass of other compounds reaching the adsorber likely would not be noticeable. For those plants where cyclohexanone is not used, the rate of fouling might increase slightly, depending on the identity of the fouling component(s) and the point(s) of generation in the coating process. Compounds with relatively high vapor pressure, the type that are captured in the application/flashoff area, normally are easily removed from the carbon and contribute very little to the fouling rate.

The second effect of an increased mass flow rate to the adsorber is a reduction in the length of the adsorption cycle prior to breakthrough. In all carbon adsorption systems, the carbon gradually loses capacity with use, and the length of the adsorption cycle prior to breakthrough decreases. The carbon must be replaced when the adsorption cycle reaches the minimum acceptable length. Thus, the starting point of the process, the initial length of the adsorption cycle with fresh carbon, is critical in determining the bed life. The reduction in the initial length of the adsorption cycle due to increased capture under the NSPS would be expected to be approximately proportional to the increase in the mass flow rate, in this case, about 10 percent. The absolute magnitude of the reduction will depend on the design of the system but normally will not exceed several minutes. In a well-designed system, such a change will represent only a small fraction of the difference between the initial length of the adsorption cycle and the minimum acceptable length. The combination of this effect and the minimal increase in the rate of fouling will result in only a small reduction in bed life.

The commenter suggested a second approach that implied that the difference between the NSPS and baseline control levels lies not in capture efficiency but in the efficiency at which the adsorption system is operated. Under this scenario, the capture efficiency would be constant under baseline and NSPS control situations, but the efficiency of the adsorber would have to rise from 85 percent at the baseline to 95 percent under the NSPS.

This scenario, like the one discussed above, would result in a slight decrease in the carbon bed life. The use or nonuse of cyclohexanone has no bearing on this fact; the same quantity of cyclohexanone would reach the adsorber under either of the control options. In addition, the total mass flow rate to the adsorber of all compounds would be identical in the two cases, so the effects discussed above would not occur. However, operation at a higher control efficiency (95 percent) would require that the adsorption cycle be ended earlier than if operation were at a lower efficiency (85 percent). This would reduce the initial length of the adsorption cycle with fresh carbon, and the bed life would be reduced correspondingly.

The exact magnitude of the reduction in cycle length would be determined by a number of site-specific conditions. However, the majority of emissions over the course of a carbon bed's adsorption cycle occurs at the end of the cycle as the solvent front begins to break through the bed. The emission rate rises very rapidly at this time. Thus, the length of an adsorption cycle over which 95 percent efficiency is achieved would be, at most, a few minutes shorter than an 85 percent efficient cycle. With a properly designed, operated, and maintained system, this would result in only slightly more frequent carbon replacement, and the bed life reduction would be small.

The cost-effectiveness implications of the small bed life reduction under the NSPS relative to baseline regulations were analyzed using the "typical" model line (developed for the preproposal cost analysis), which more closely approximates the commenter's situation than do the other model lines that were developed by EPA. For this case, the annualized control cost of the NSPS (with a bed life of 6 months) compared to the baseline control level (with a bed life of 12 months) was found to be a net credit. Additional information on the Agency's analysis of the cost effectiveness of the NSPS at various bed lives is included in the promulgation BID.

Based on the discussion presented above, the Agency has concluded that the NSPS is achievable and cost effective when solvent blends containing ketones are used. No revisions have been made to the standards as a result of this comment.

Several commenters noted that EPA's projections of growth in the industry (21 new lines by 1990) are out-of-date and that, in fact, 17 or 18 lines have been shut down, retired, or put on stand-by since the National Air Pollution Control Techniques Advisory Committee meeting. The commenters claimed that because so many lines are no longer in operation, VOC emissions from this industry have decreased, and there is no longer a need for the NSPS.

Another commenter presented the results of an independent survey of magnetic tape manufacturers, which indicated that most lines affected by the standard will be modified or reconstructed lines rather than new lines as asserted by EPA at proposal. The survey concluded that significantly more facilities would become subject to the NSPS than the 20 estimated by EPA.

The Agency has confirmed that there are several lines that are not currently in operation. However, these shutdowns do not prove that there will be no facilities affected by the standards in the next 5 years. In fact, as stated by the last commenter and by industry representatives at the public hearing, there will be modifications to existing lines that would cause additional lines to become subject to the proposed standards. Also, at least one new facility has been announced, and other firms have made inquiries of EPA that suggest additional new facilities are under serious consideration. Following the public hearings, six modification scenarios were provided by industry (see Section VIII.C). The EPA determined that three of these are likely to meet the criteria given in 40 CFR 60.14 and would be actual modifications. The EPA conducted its own survey of the industry for information on plans to construct new lines or modify existing lines.

Based on this new information, the projected number of coating lines to become affected by the fifth year of applicability (1991) has been revised downward from 21 to 16. Of these, 5 will be new and 11 will be modified or reconstructed. However, one new line and two modified lines will fall below the applicable minimum annual solvent utilization cutoffs and, thus, are not expected to be required by today's rule to control emissions. In addition, under today's standards, two of the modified and reconstructed coating operations are not expected to be required to increase control efficiency. In summary, 16 affected lines are expected in the

next 5 years, of which 11 will be required to increase their level of control; the remaining 5 lines will be subject only to monitoring and reporting requirements. The reduction in nationwide VOC emissions due to the standards in the fifth year after promulgation is expected to be about 960 Mg. Thus, the decline in the number of plants manufacturing magnetic tape does not negate the need for the NSPS.

The Agency believes that the current growth projection is reasonable based on the information at hand. Of course, economic conditions are always changing, and industry growth patterns will change concurrently. While future changes may result in impacts somewhat different from those now estimated, today's rule is expected to remain cost effective with reasonable economic impacts even in the face of these changes.

Three commenters noted that industry-wide emissions have not increased as projected in the proposal BID; instead, industry has reduced VOC emissions as a result of increasing the packing density of information bytes and/or reducing coating thickness (and solvent consumed) per unit of tape produced. One commenter stated that because decreased emissions have resulted in decreased cost effectiveness, the costs of controls should be reevaluated.

No data have been received supporting the contention that VOC use per unit of tape has decreased. However, even if this is the case, total VOC emissions from the industry may not decrease. According to industry representatives, some new lines will be built and modifications of existing lines will occur in this industry. Of the modification scenarios received, the most common is an increase in production (see section VIII.C). Thus, any decrease in VOC use per unit of tape may be offset by increased tape production.

In any case, as discussed above, a net decrease in emissions from this industry would not negate the impact of the NSPS. In addition, the proposed NSPS included an annual solvent use cutoff below which the cost to install a control device is not reasonable. This cutoff was discussed at proposal and has been retained for new coating operations. A higher cutoff has been added for modified or reconstructed coating operations. Thus, the evaluation of control costs for lower VOC emission rates has already been performed and the Agency does not need to perform another evaluation.

Two commenters stated that the economic assumptions and forecasts contained in Chapter 9 of the proposal BID are not representative of the economic situation and price competition faced by the domestic magnetic tape manufacturing industry today. One commenter was particularly concerned that the references in Chapter 9 are not more current than 1983 and requested that the economic assumptions and forecasts be reevaluated prior to promulgation of the standard. Another commenter stated that the proposed NSPS will have a negative impact on the domestic magnetic tape industry.

One commenter contended that, contrary to EPA's position, the regulation would have negative economic impacts. The commenter disagreed with the Agency's conclusion that solvent recovery credits would more than offset the NSPS compliance costs, creating a net cost savings. The commenter's own survey of eight plants indicated that savings in new solvent purchases resulting from recovery and reuse of spent solvent from the incremental VOC controls necessitated by the NSPS were not sufficient to offset the total annualized costs of the proposed regulation. Thus, the commenter concluded that the regulation would create net compliance costs for the industry.

The economic impacts of today's rule have been recalculated since proposal using information received from industry and current market prices. This recalculation has resulted in revised impacts but no change in the conclusion that the economic impacts are negligible. The actual impacts may differ from those now estimated as a result of the ever-changing economic climate. These changes are not expected to alter the conclusion that the standards will have negligible economic impacts. More detail on this subject is presented in Section VI (Economic Impact) of this preamble.

One commenter pointed out that this decade has brought dramatic changes to the magnetic tape industry. The domestic industry's market share has fallen, while the retail price of tape has declined sharply. The combination of these two factors has caused retail price to become a key factor in this competitive industry with the result that retail price is much less elastic now than it was a few years ago. This fact makes it difficult for domestic producers to pass on to their customers price increases necessitated by the NSPS. Any increase in retail price places domestic producers at a disadvantage to the foreign competition and increases the foreign share of the market. The commenter stated that, because offshore facilities are subject to less environmental regulation than those in the U.S., driving the industry offshore would also result in a net detriment to the environment.

Another commenter concurred that an already shrinking margin of profit would be reduced further by foreign competition that is not subject to the regulations and that the proposed regulations would accelerate the trend of exporting coating lines offshore. A third commenter noted that foreign competition would not be subject to the limits on technological innovation as would domestic manufacturers subject to the proposed standards, while a fourth commenter stated that his company would build a new line offshore rather than add further control on an existing line modified under the proposed NSPS.

Foreign competition is an important element in the magnetic tape industry. During recent years, depressed market prices have discouraged the domestic development of new production lines or the entry of new firms in the industry. Lower prices also have encouraged the exit of other firms from the industry and the modification of existing lines to reduce production costs.

Because the NSPS has an insignificant impact on new lines and has little impact on production costs, it is doubtful that the NSPS for new lines would disadvantage U.S. producers relative to their competitors. With modified lines, some additional control costs may have to be incurred, but even these are insignificant, and the production cost reductions that will result from these modifications are expected to far outweigh any additional cost of the added controls. In addition, recent changes in the foreign exchange rates should improve the competitive position of domestic producers.

Environmental regulations are only one of the many factors that must be weighed in determining the comparative advantage of one country over another in the production and marketing of products in international markets. Based upon the evidence to date, however, the economic impacts of the NSPS on the ability of domestic producers to compete in the international market is negligible.

Most of the companies in this industry are large multinational companies with annual revenues and assets in excess of $1 billion (Table 9–13, pp. 9–27 and 9–28 of proposal BID). These companies each have a minimum of several hundred million dollars of long-term debt. Even the most costly investment for new or modified lines would not increase the debt loadings of the companies by more

than 1 percent. Furthermore, with the recent decrease in interest rates, a greater supply of investment funds at lower cost is now available, thus improving the affordability of new investments.

The proposed standards do not affect or limit technological innovation. All products known to be manufactured in the magnetic tape industry can be coated in a total enclosure. The use of a total enclosure does not affect coating composition or necessitate changes in other aspects of the production process.

The combination of the factors discussed above indicates that the cost to comply with the NSPS would not drive the industry offshore.

A commenter representing an industry trade organization submitted information on an independent survey of the magnetic tape manufacturing industry. Survey forms were sent to 12 companies that indicated a willingness to participate, and six of these firms, representing eight plants, responded. The information included an economic impact analysis of the proposed NSPS that was based on the survey results. The major conclusions drawn by the commenter from the results of this survey and analysis that are not discussed elsewhere are presented below.

The commenter stated that the NSPS would result in significant costs in the form of increased VOC control expenditures and reduced investments in innovations designed to enhance economic productivity. Based on extrapolation of survey findings, the commenter estimated that cumulative capital costs would total $38.1 million industry wide through 1991, with associated net annual operating costs reaching $2.6 million in 1991. Thus, the commenter estimated total annualized costs (annualized capital costs plus operating costs) of $9.2 million in 1991. The commenter also contended that the NSPS would not pass EPA's criterion of cost effectiveness in 4 of the 5 years subject to analysis. The commenter estimated the fifth year (1991) annualized cost per ton of VOC emission reduction to be $1,816 for 2,452 total estimated tons of reduced emissions. This value is higher than the value alleged by the commenter to be the cutoff criterion used by EPA for NSPS ($1,075 per ton). Furthermore, the commenter stated that, because nearly all of the anticipated reduction in emissions resulting from the NSPS is expected to occur in areas that have already attained EPA's ambient air standards, the reduction would be less valuable in terms of environmental benefit.

The commenter believed the survey results demonstrated the potential for significant impacts in the form of financial hardship for domestic plants (if costs are not passed on to the consumer) and reduced international competitiveness (if costs are passed on to the consumer). If the increased costs are absorbed by the industry, the commenter felt that the regulation would have an adverse impact on profitability and investment potential. If, on the other hand, the increased costs are borne by the consumer in the form of higher prices, this would result in smaller market shares and fewer jobs for the domestic industry. The commenter concluded that in either case, there are significant factors that fall within the definition of "major rule" in Executive Order 12291, and questioned EPA's position that the proposed rule is not a major rule.

As indicated earlier in this section, EPA has conducted a new survey of the growth plans in this industry since the time the regulation was proposed. This survey agreed with the survey conducted by the commenter in that, over the next 5 years, there is likely to be more modification or reconstruction of existing lines than construction of new lines. Subsequently, a new cost analysis was carried out which resulted in a change in the levels of control required for some modified and reconstructed coating operations and for most mix equipment (see the introductory portion of section VIII and section VIII.C). The revised NSPS takes into account the greater expense of retrofitting modified or reconstructed facilities. Because the commenter's economic analysis was based on the proposed standards and not on the revised ones, the results of the commenter's analysis are no longer applicable. Not enough data were submitted to allow a determination of whether the changes included in the commenter's analysis would legally qualify as modifications and reconstructions, whether the incremental control measures and costs claimed to be required were realistic, or what effect the revisions to the standards would have. Because the commenter's study did not raise any significant new concerns that were not addressed by the revisions already made to the standards, it was determined that the level of effort required to verify the costs and adjust the survey results to reflect the revised NSPS was not justified. The Agency's new economic analysis, based on the revised NSPS, indicates that the standard is cost effective and will result in an industry-wide net credit of $32,000 per year in 1991.

The Agency does not agree with the commenter's allegation that the anticipated emission reductions due to the NSPS are environmentally less valuable simply because they are expected to occur primarily in attainment areas. The cost-effectiveness value considered reasonable for an NSPS for this industry ($1,200/Mg) was determined in the context of a national standard for an entire class of sources without consideration of local air quality conditions. Thus, when source-specific air quality and related public health considerations are important factors (e.g., in nonattainment areas and in PSD permitting activities), the cost-effectiveness value that would be considered reasonable would be expected to exceed the value determined for the NSPS program. Also, VOC emitted in some attainment areas can be transported to nonattainment areas, adding to the air quality problems experienced there.

The EPA maintains its position that this rule is not a major rule based on the three criteria required to meet this classification. First, the new economic analysis conducted by the Agency has verified that industry-wide annualized costs are less than $100 million. As previously stated, it is estimated that the standard would result in a net credit of $32,000 per year in the fifth year. Secondly, the revised economic analysis showed that no significant increase in retail price is expected as a result of the standard; therefore, it would not be considered a "major increase in costs or prices" as specified in the second criterion in the Order. Thirdly, the revised economic analysis did not indicate any significant adverse effects on competition, investment, productivity, employment, innovation, or the ability of U.S. firms to compete with foreign firms.

In summary, since the time of proposal of the standard, the Agency has considered the higher costs of retrofitting modified or reconstructed facilities to comply with the standards, and revised the regulation accordingly. Even assuming the increased control costs of the NSPS presented in the commenter's study and the decreased prices and competitive market conditions facing the industry are applicable, the conclusion that the proposed rule is not a major rule is still correct. Using the commenter's estimates, the costs to the industry that result from the regulation ($9.2 million total annualized costs) are considerably less than the $100 million criterion, and

the subsequent production cost and product price increases, assuming full costs are passed through to the consumer, remain small. Consequently, the net impact of the regulation on the domestic industry's ability to compete is also likely to be minimal.

Based on the data presented in the commenter's study, percentage increases in retail product prices were calculated. These calculations indicate that increases in retail prices of less than 1 percent would occur for most products and scenarios (maximum price increase of 1.52 percent) if all costs are passed through to the consumer. This illustrates that, even assuming the commenter's data are still applicable under the revised regulation, the cost and price effects of the NSPS are relatively insignificant.

G. Suspension of the Standards

Four commenters questioned the need for an NSPS for the magnetic tape industry and suggested either that the NSPS be suspended pending a thorough reevaluation or rescinded. This argument is based on the decrease in VOC emissions due to fewer coating lines and thinner coatings, the reduced growth projected for the industry, and the relatively small share of total national VOC emissions originating from magnetic tape manufacturing facilities (see section VIII.F). One commenter stated that the existing State regulations, at least in the Bay Area of California, are sufficiently stringent and that a new NSPS is not needed.

Because the magnetic tape manufacturing industry is a subcategory of the industrial paper coating industry, which is ranked fourth on the NSPS Priority List (40 CFR 60.16), the CAA authorizes EPA to promulgate standards. For the reasons discussed in section VIII.F, the Agency has determined that the NSPS will have a favorable impact on VOC emission levels despite a lower growth projection and the possible decrease in VOC use per unit of tape. Because the standard will have a favorable environmental impact and reasonable cost and economic impacts, the proposed standard will not be suspended or rescinded.

The VOC regulations in California are more stringent than the baseline used in the analysis of this industry. However, the regulations in all other States generally require a level of control of 83 percent or lower. The NSPS would set a new floor of 93 percent control for facilities subject to its provisions and, thus reduce nationwide emissions from this industry. Therefore, the Agency believes there is a need for the standards. Of course, State and local agencies are free to require more stringent control as dictated by the needs of specific locations subject to PSD or NSR.

IX. Administrative

The docket is an organized and complete file of all the information considered by EPA in the development of this rulemaking. The docket is a dynamic file because material is added throughout the rulemaking development. The docketing system is intended to allow members of the public and industries involved to identify and locate documents readily so that they can effectively participate in the rulemaking process. Along with the statement of basis and purpose of the proposed and promulgated standards and EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review [section 307(d)(7)(A)].

The effective date of this regulation is October 3, 1988. Section 111 of the CAA provides that standards of performance or revisions thereof become effective upon promulgation and apply to affected facilities upon which construction or modification was commenced after the date of proposal, January 22, 1986.

As prescribed by section 111, the promulgation of these standards was preceded by the Administrator's determination (40 CFR 60.16, 44 FR 4922, dated August 21, 1979) that industrial paper coating contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare. The magnetic tape manufacturing industry is included in the industrial paper coating source category. In accordance with section 117 of the Act, publication of these promulgated standards was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies.

This regulation will be reviewed 4 years from the date of promulgation as required by the CAA. This review will include an assessment of such factors as the need for integration with other programs, the existence of alternative methods, enforceability, improvements in emission control technology, and reporting requirements.

Section 317 of the CAA requires the Administrator to prepare an economic impact assessment for any new source standard of performance promulgated under section 111(b) of the Act. An economic impact assessment was prepared for this regulation and for other regulatory alternatives. All aspects of the assessment were considered in the formulation of the standards to ensure that cost was carefully considered in determining BDT. The economic impact assessment is included in the BID for the proposed standards.

The information collection requirements contained in this rule have been approved by the Office of Management and Budget (OMB) under the provisions of the *Paperwork Reduction Act*, 44 U.S.C. 3501 *et seq.* and have been assigned OMB control number 2060–0171.

Public reporting burden resulting from this rulemaking is estimated to be 16 hours per response (on average), including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Initial performance testing is estimated to vary from 450 to 650 hours (on average) per facility.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM–223, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

Under Executive Order 12291, EPA is required to judge whether a regulation is a "major rule" and, therefore, subject to the requirements of a regulatory impact analysis. The Agency has determined that this regulation would result in none of the adverse economic effects set forth in section 1 of the order as grounds for finding a regulation to be a "major rule." The maximum cost increase resulting from the NSPS for any product in this industry will be only approximately 0.5 percent. Such an increase will have an insignificant impact on the industry. In the fifth year after promulgation, the total annualized cost of the NSPS will amount to a net credit of approximately $32,000. The Agency has concluded, therefore, that this regulation is not a "major rule" under Executive Order 12291.

The Regulatory Flexibility Act of 1980 requires the identification of potentially adverse impacts of Federal regulations upon small business entities. The Act specifically requires the completion of a Regulatory Flexibility Analysis in those instances where small business impacts are possible. Because these standards impose only negligible adverse economic impacts, a Regulatory

Flexibility Analysis has not been conducted.

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that this rule will not have a significant economic impact on a substantial number of small entities.

List of Subjects in 40 CFR Part 60

Air pollution control, Incorporation by reference, Intergovernmental relations, Magnetic tape manufacturing (SIC Codes 3679, 3573), Reporting and recordkeeping requirements.

Date: September 16, 1988.

Lee Thomas,

Administrator.

40 CFR Part 60 is amended as follows:

PART 60—[AMENDED]

1. The authority citation for Part 60 continues to read as follows:

Authority: Secs. 101, 111, 114, 116, 301, Clean Air Act as amended (42 U.S.C. 7401, 7411, 7414, 7416, 7601).

2. By adding a new Subpart SSS to read as follows:

Subpart SSS—Standards of Performance for Magnetic Tape Coating Facilities

Sec.

60.710 Applicability and designation of affected facility.
60.711 Definitions, symbols, and cross-reference tables.
60.712 Standards for volatile organic compounds.
60.713 Compliance provisions.
60.714 Installation of monitoring devices and recordkeeping.
60.715 Test methods and procedures.
60.716 Permission to use alternative means of emission limitation.
60.717 Reporting and monitoring requirements.
60.718 Delegation of Authority.

Subpart SSS—Standards of Performance for Magnetic Tape Coating Facilities

§ 60.710 Applicability and designation of affected facility.

(a) The affected facilities to which the provisions of this subpart apply are:

(1) Each coating operation; and

(2) Each piece of coating mix preparation equipment.

(b) Any new coating operation that utilizes less than 38 m^3 of solvent or any modified or reconstructed coating operation that utilizes less than 370 m^3 of solvent for the manufacture of magnetic tape per calendar year is subject only to the requirements of § 60.714(a), § 60.717(b), and § 60.717(c). If the amount of solvent utilized for the manufacture of magnetic tape equals or exceeds these amounts in any calendar year, the facility is subject to § 60.712 and all other sections of this subpart. Once a facility has become subject to § 60.712 and all other sections of this subpart, it will remain subject to those requirements regardless of changes in annual solvent utilization.

(c) This subpart applies to any affected facility for which construction, modification, or reconstruction begins after January 22, 1986.

§ 60.711 Definitions, symbols, and cross reference tables.

(a) All terms used in this subpart that are not defined below have the meaning given to them in the Act and in Subpart A of this part.

(1) "Base film" means the substrate that is coated to produce magnetic tape.

(2) "Capture system" means any device or combination of devices that contains or collects an airborne pollutant and directs it into a duct.

(3) "Coating applicator" means any apparatus used to apply a coating to a continuous base film.

(4) "Coating mix preparation equipment" means all mills, mixers, holding tanks, polishing tanks, and other equipment used in the preparation of the magnetic coating formulation but does not include those mills that do not emit VOC because they are closed, sealed, and operated under pressure.

(5) "Coating operation" means any coating applicator, flashoff area, and drying oven located between a base film unwind station and a base film rewind station that coat a continuous base film to produce magnetic tape.

(6) "Common emission control device" means a control device controlling emissions from the coating operation as well as from another emission source within the plant.

(7) "Concurrent" means construction of a control device is commenced or completed within the period beginning 6 months prior to the date construction of affected coating mix preparation equipment commences and ending 2 years after the date construction of affected coating mix preparation equipment is completed.

(8) "Control device" means any apparatus that reduces the quantity of a pollutant emitted to the air.

(9) "Cover" means, with respect to coating mix preparation equipment, a device that lies over the equipment opening to prevent VOC from escaping and that meets the requirements found in § 60.712(c)(1)–(5).

(10) "Drying oven" means a chamber in which heat is used to bake, cure, polymerize, or dry a surface coating.

(11) "Equivalent diameter" means four times the area of an opening divided by its perimeter.

(12) "Flashoff area" means the portion of a coating operation between the coating applicator and the drying oven where solvent begins to evaporate from the coated base film.

(13) "Magnetic tape" means any flexible substrate that is covered on one or both sides with a coating containing magnetic particles and that is used for audio or video recording or information storage.

(14) "Natural draft opening" means any opening in a room, building, or total enclosure that remains open during operation of the facility and that is not connected to a duct in which a fan is installed. The rate and direction of the natural draft across such an opening is a consequence of the difference in pressures on either side of the wall containing the opening.

(15) "Nominal 1-month period" means a calendar month or, if established prior to the performance test in a statement submitted with notification of anticipated startup pursuant to 40 CFR 60.7(a)(2), a similar monthly time period (e.g., 30-day month or accounting month).

(16) "Temporary enclosure" means a total enclosure that is constructed for the sole purpose of measuring the fugitive emissions from an affected facility. A temporary enclosure must be constructed and ventilated (through stacks suitable for testing) so that it has minimal impact on the performance of the permanent capture system. A temporary enclosure will be assumed to achieve total capture of fugitive VOC emissions if it conforms to the requirements found in § 60.713(b)(5)(i) and if all natural draft openings are at least four duct or hood equivalent diameters away from each exhaust duct or hood. Alternatively, the owner or operator may apply to the Administrator for approval of a temporary enclosure on a case-by-case basis.

(17) "Total enclosure" means a structure that is constructed around a source of emissions so that all VOC emissions are collected and exhausted through a stack or duct. With a total enclosure, there will be no fugitive emissions, only stack emissions. The only openings in a total enclosure are forced makeup air and exhaust ducts and any natural draft openings such as those that allow raw materials to enter and exit the enclosure for processing. All access doors or windows are closed during routine operation of the enclosed source. Brief, occasional openings of such doors or windows to accommodate

process equipment adjustments are acceptable, but, if such openings are routine or if an access door remains open during the entire operation, the access door must be considered a natural draft opening. The average inward face velocity across the natural draft openings of the enclosure must be calculated including the area of such access doors. The drying oven itself may be part of the total enclosure. A permanent enclosure that meets the requirements found in § 60.713(b)(5)(i) is assumed to be a total enclosure. The owner or operator of a permanent enclosure that does not meet the requirements may apply to the Administrator for approval of the enclosure as a total enclosure on a case-by-case basis. Such approval shall be granted upon a demonstration to the satisfaction of the Administrator that all VOC emissions are contained and vented to the control device.

(18) "Utilize" refers to the use of solvent that is delivered to coating mix preparation equipment for the purpose of formulating coatings to be applied on an affected coating operation and any other solvent (e.g., dilution solvent) that is added at any point in the manufacturing process.

(19) "VOC content of the coating applied" means the product of Method 24 VOC analyses or formulation data (if the data are demonstrated to be equivalent to Method 24 results) and the total volume of coating fed to the coating applicator. This quantity is intended to include all VOC that actually are emitted from the coating operation in the gaseous phase. Thus, for purposes of the liquid-liquid VOC material balance in § 60.713(b)(1), any VOC (including dilution solvent) added to the coatings must be accounted for, and any VOC contained in waste coatings or retained in the final product may be measured and subtracted from the total. (These adjustments are not necessary for the gaseous emission test compliance provisions of § 60.713(b).)

(20) "Volatile Organic Compounds" or "VOC" means any organic compounds that participate in atmospheric photochemical reactions or that are measured by Method 18, 24, 25, or 25A or an equivalent or alternative method as defined in 40 CFR 60.2.

(b) The nomenclature used in this subpart has the following meaning:

(1) "A_k" means the area of each natural draft opening (k) in a total enclosure, in square meters.

(2) "C_{aj}" means the concentration of VOC in each gas stream (j) exiting the emission control device, in parts per million by volume.

(3) "C_{bi}" means the concentration of VOC in each gas stream (i) entering the emission control device, in parts per million by volume.

(4) "C_{di}" means the concentration of VOC in each gas stream (i) entering the emission control device from the affected coating operation, in parts per million by volume.

(5) "C_{fk}" means the concentration of VOC in each uncontrolled gas stream (k) emitted directly to the atmosphere from the affected coating operation, in parts per million by volume.

(6) "C_{gv}" means the concentration of VOC in the gas stream entering each individual carbon adsorber vessel (v), in parts per million by volume. For the purposes of calculating the efficiency of the individual adsorber vessel, C_{gv} may be measured in the carbon adsorption system's common inlet duct prior to the branching of individual inlet ducts.

(7) "C_{hv}" means the concentration of VOC in the gas stream exiting each individual carbon adsorber vessel (v), in parts per million by volume.

(8) "E" means the control device efficiency achieved for the duration of the emission test (expressed as a fraction).

(9) "F" means the VOC emission capture efficiency of the VOC capture system achieved for the duration of the emission test (expressed as a fraction).

(10) "FV" means the average inward face velocity across all natural draft openings in a total enclosure, in meters per hour.

(11) "G" means the calculated weighted average mass of VOC per volume of coating solids (in kilograms per liter) applied each nominal 1-month period.

(12) "H_v" means the individual carbon adsorber vessel (v) efficiency achieved for the duration of the emission test (expressed as a fraction).

(13) "H_{sys}" means the carbon adsorption system efficiency calculated when each adsorber vessel has an individual exhaust stack.

(14) "L_{si}" means the volume fraction of solids in each coating (i) applied during a nominal 1-month period as determined from the facility's formulation records.

(15) "M_{ci}" means the total mass in kilograms of each coating (i) applied at an affected coating operation during a nominal 1-month period as determined from facility records. This quantity shall be determined at a time and location in the process after all ingredients (including any dilution solvent) have been added to the coating, or appropriate adjustments shall be made to account for any ingredients added after the mass of the coating has been determined.

(16) "M_r" means the total mass in kilograms of VOC recovered for a nominal 1-month period.

(17) "Q_{aj}" means the volumetric flow rate of each gas stream (j) exiting the emission control device, in dry standard cubic meters per hour when Method 18 or 25 is used to measure VOC concentration or in standard cubic meters per hour (wet basis) when Method 25A is used to measure VOC concentration.

(18) "Q_{bi}" means the volumetric flow rate of each gas stream (i) entering the emission control device, in dry standard cubic meters per hour when Method 18 or 25 is used to measure VOC concentration or in standard cubic meters per hour (wet basis) when Method 25A is used to measure VOC concentration.

(19) "Q_{di}" means the volumetric flow rate of each gas stream (i) entering the emission control device from the affected coating operation, in dry standard cubic meters per hour when Method 18 or 25 is used to measure VOC concentration or in standard cubic meters per hour (wet basis) when Method 25A is used to measure VOC concentration.

(20) "Q_{fk}" means the volumetric flow rate of each uncontrolled gas stream (k) emitted directly to the atmosphere from the affected coating operation, in dry standard cubic meters per hour when Method 18 or 25 is used to measure VOC concentration or in standard cubic meters per hour (wet basis) when Method 25A is used to measure VOC concentration.

(21) "Q_{gv}" means the volumetric flow rate of the gas stream entering each individual carbon adsorber vessel (v), in dry standard cubic meters per hour when Method 18 or 25 is used to measure VOC concentration or in standard cubic meters per hour (wet basis) when Method 25A is used to measure VOC concentration. For purposes of calculating the efficiency of the individual adsorber vessel, the value of Q_{gv} can be assumed to equal the value of Q_{hv} measured for that adsorber vessel.

(22) "Q_{hv}" means the volumetric flow rate of the gas stream exiting each individual carbon adsorber vessel (v), in dry standard cubic meters per hour when Method 18 or 25 is used to measure VOC concentration or in standard cubic meters per hour (wet basis) when Method 25A is used to measure VOC concentration.

(23) "$Q_{in\ i}$" means the volumetric flow rate of each gas stream (i) entering the total enclosure through a forced makeup

air duct, in standard cubic meters per hour (wet basis).

(24) "$Q_{out\ j}$" means the volumetric flow rate of each gas stream (j) exiting the total enclosure through an exhaust duct or hood, in standard cubic meters per hour (wet basis).

(25) "R" means the overall VOC emission reduction achieved for the duration of the emission test (expressed as a percentage).

(26) "RS_i" means the total mass (kg) of VOC retained on the coated base film after oven drying for a given magnetic tape product.

(27) "V_{ci}" means the total volume in liters of each coating (i) applied during a nominal 1-month period as determined from facility records.

(28) "W_{oi}" means the weight fraction of VOC in each coating (i) applied at an affected coating operation during a nominal 1-month period as determined by Method 24. This value shall be determined at a time and location in the process after all ingredients (including any dilution solvent) have been added to the coating, or appropriate adjustments shall be made to account for any ingredients added after the weight fraction of VOC in the coating has been determined.

(c) Tables 1a and 1b present a cross reference of the affected facility status and the relevant section(s) of the regulation.

TABLE 1A.—CROSS REFERENCE [a] [b]

Status	Standard [c]	Compliance provisions [d]—§ 60.713
A. Coating operation alone:		
New	§ 60.712(a): Recover or destroy at least 93 percent of the VOC applied	(b)(1), (b)(2), (b)(3), (b)(4), (b)(5), (c), (d)
Modified or reconstructed:		
1. If at least 90 percent of the VOC applied is recovered or destroyed prior to modification/reconstruction.	§ 60.712(b)(1): (i) Maintain demonstrated level of VOC control or 93 percent, whichever is lower. (ii) If the VOC control device is subsequently replaced, the new control device must be at least 95 percent efficient, a demonstration must be made that the overall level of VOC control is at least as high as required with the old control (90 to 93 percent) and, if the demonstrated level is higher than the old level, maintain the higher level of control (up to 93 percent).	(a)(1), (a)(3), (b)(1), (b)(2), (b)(3), (b)(4), (c), (d)
2. If existing coating operation has a total enclosure vented to a control device that is at least 92 percent efficient.	§ 60.712(b)(2): (i) Continue to vent all VOC emissions to the control device and maintain control efficiency at or above the demonstrated level or 95 percent, whichever is lower. (ii) If the VOC control device is subsequently replaced, the new control device must be at least 95 percent efficient and all VOC emissions must be vented from the total enclosure to the new control device.	(a)(2), (b)(5), (c), (d)
3. If existing coating operation is not in the previous two categories.	§ 60.712(b)(3): Recover or destroy at least 93 percent of the VOC applied	(b)(1), (b)(2), (b)(3), (b)(4), (b)(5), (c), (d)
B. Coating mix preparation equipment alone:		
New:		
1. With concurrent construction of new VOC control device (other than a condenser) on the coating operation.	§ 60.712(c): Install and use covers and vent to a control device that is at least 95 percent efficient [e].	(b)(6)
2. Without concurrent construction of new VOC control device on the coating operation *or* with concurrent construction of a condenser.	§ 60.712 (d)(1) *or* (d)(2): Install and use covers and vent to a control device *or* install and use covers [e].	(b)(7), (b)(8)
Modified or reconstructed	§ 60.712 (d)(1) *or* (d)(2): Install and use covers and vent to a control device *or* install and use covers [e].	(b)(7), (b)(8)
C. Both coating operation and coating mix preparation equipment: New and modified or reconstructed.	§ 60.712(e): In lieu of standards in § 60.712(a)–(d), use coatings containing a maximum of 0.20 kg VOC per liter of coating solids.	(b)(9)

[a] This table is presented for the convenience of the user and is not intended to supercede the language of the regulation. For the details of the requirements, refer to the text of the regulation.

[b] Refer to Part B to determine which subsections of § 60.714, § 60.715, and § 60.717 correspond to each compliance provision (§ 60.713).

[c] As per § 60.710(b), any new coating operation with solvent utilization < 38 m^3/yr or any modified or reconstructed coating operation with solvent utilization < 370 m^3/yr is exempt from the VOC standards (§ 60.712). Such coating operations are subject only to § 60.714(a), § 60.717(b), and § 60.717(c). However, should a coating operation once exceed the applicable annual solvent utilization cutoff, that coating operation shall be subject to the VOC standards (§ 60.712) and all other sections of the subpart. Once this has occurred, the coating operation shall remain subject to those requirements regardless of changes in annual solvent utilization.

[d] As applicable.

[e] Section 60.716 permits the use of an alternative means of VOC emission limitation that achieves an equivalent or greater VOC emission reduction.

TABLE 1B.—CROSS REFERENCE

Compliance provisions [a]—§60.713	Test methods—§ 60.715	Category/equipment [b]	Installation of monitoring devices and recordkeeping—§ 60.714	Reporting and monitoring requirements [c]—§ 60.717
A. Coating operation alone:				
(b)(1)—When emissions from only the affected coating operation are controlled by a solvent recovery device, perform a liquid-liquid VOC material balance.	(a)		(b), (i), (k)	(a), (d)(1), (e), (h), (i)
(c)(2)—When emissions from only the affected coating operation are controlled by an incinerator or when a common emission control device (other than a carbon adsorption system with individual exhaust stacks for each adsorber vessel) is used to control emissions from an affected coating operation as well as from other sources of VOC, perform a gaseous emission test.	(b)–(g)	General CA CO TI CI PE, TE	(i), (k) (c) (d) (e) (f) (g)	(a), (e), (h), (i) (d)(3), (d)(4) (d)(5) (d)(6) (d)(7) (d)(8)

TABLE 1B.—CROSS REFERENCE—Continued

Compliance provisions [a]—§60.713	Test methods—§ 60.715	Category/equipment [b]	Installation of monitoring devices and recordkeeping—§ 60.714	Reporting and monitoring requirements [c]—§ 60.717
(b)(3)—When emissions from both the affected coating operation and from other sources of VOC are controlled by a carbon adsorption system with individual exhaust stacks for each adsorber vessel, perform a gaseous emission test.	(b)–(g)	General CA PE, TE	(1), (k) (c) (g)	(a), (e), (h), (i) (d)(3), (d)(4) (d)(8)
(b)(4)—When emissions from more than one affected coating operation are vented through the same duct to a control device also controlling emissions from nonaffected sources that are vented separately from the affected coating operations, consider the combined affected coating operations as a single emission source and conduct a compliance test described in § 60.713(b) (2) or (3).	(b)–(g)	General CA CO TI CI PE, TE	(i), (k) (c) (d) (e) (f) (g)	(a), (e), (h), (d)(3), (d)(4) (d)(5) (d)(6) (d)(7) (d)(8)
(b)(5)—Alternative to § 60.713(b) (1)–(4): Demonstrate that a total enclosure is installed around the coating operation and that all VOC emissions are vented to a control device with the specified efficiency.	(b)–(g)	General CA CO TI CI TE	(i), (k) (c) (d) (e) (f) (h)	(a), (e) (h), (i) (d)(3), (d)(4) (d)(5) (d)(6) (d)(7) (d)(8)
B. Coating mix preparation equipment alone:				
(b)(6)—Demonstrate that covers meeting the requirements of § 60.712(c) (1)–(5) are installed and used properly; procedures detailing the proper use of covers are posted; the mix equipment is vented to a control device; and the control device efficiency is greater than or equal to 95 percent.	(b)–(g)	General CA TI CI	(k) (c) (e) (f)	(a), (e), (h), (i) (d)(3), (d)(4) (d)(6) (d)(7)
(b)(7)—Demonstrate that covers meeting the requirements of § 60.712(c) (1)–(5) are installed and used properly; procedures detailing the proper use of covers are posted; and the mix equipment is vented to a control device.				
(b)(8)—Demonstrate that covers meeting the requirement of § 60.712(c) (1)–(5) are installed and used properly and that procedures detailing the proper use of the covers are posted.				
C. Both coating operation and coating mix preparation equipment: (b)(9)—Determine that weighted average mass of VOC in the coating per volume of coating solids applied for each month.	(a)		(i), (j) (k)	(d)(2), (e), (g), (h), (i)

[a] Section 60.713(a) specifies the procedures to be used prior to modification/reconstruction to establish the applicability of the VOC standards in §§ 60.712(b) (1) and (2) for modified/reconstructed coating operations. Section 60.713(a)(1) requires the use of the procedures of § 60.713(b) (1), (2), (3), or (4) to demonstrate prior to modification/reconstruction that 90 percent of the applied VOC is recovered or destroyed. Section 60.713(a)(2) requires the use of procedures of §60.713(b)(5) to demonstrate prior to modification/reconstruction that the coating operation has a total enclosure vented to a control device that is at least 92 percent efficient. Sections 60.713(c) and (d) do not have corresponding test methods, monitoring, reporting, or recordkeeping requirements.

[b] TI = thermal incinerator; CI = catalytic incinerator; CA = carbon adsorber; CO = condenser; PE = partial enclosure; TE = total enclosure.

[c] See § 60.717(f) for additional reporting requirements when coating mix preparation equipment is constructed at a time when no coating operation is being constructed. See § 60.717(g) for addition reporting requirements when coating mix preparation equipment is constructed at the same time as an affected coating operation.

§ 60.712 Standards for volatile organic compounds.

Each owner or operator of any affected facility that is subject to the requirements of this subpart shall comply with the emission limitations set forth in this section on and after the date on which the initial performance test required by § 60.8 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated or 180 days after initial startup, whichever date comes first.

(a) Each owner or operator shall control emissions from a new coating operation by recovering or destroying at least 93 percent of the VOC content of the coating applied at the coating applicator.

(b) Each owner or operator of a modified or reconstructed coating operation shall meet the appropriate standard set out in (b)(1), (2), or (3) of this section.

(1) For coating operations demonstrated prior to modification or reconstruction pursuant to § 60.713(a)(1) to have emissions controlled by the recovery or destruction of at least 90 percent of the VOC content of the coating applied at the coating applicator.

(i) Subject to the provisions of (b)(1)(ii) of this section, each owner or operator shall continue to control emissions from the coating operation to at least the demonstrated level or 93 percent, whichever is lower.

(ii) If the VOC control device in use during the emission reduction demonstration made pursuant to § 60.713(a)(1) is subsequently replaced, each owner or operator shall:

(A) Install a control device that is at least 95 percent efficient; and

(B) Control emissions from the coating operation to at least the level determined pursuant to § 60.713(a)(3)(ii).

(2) For coating operations demonstrated prior to modification or reconstruction pursuant to § 60.713(a)(2) to have a total enclosure installed around the coating operation and all VOC emissions ventilated to a control device that is at least 92 percent efficient.

(i) Subject to the provisions of (b)(2)(ii) of this section, each owner or operator shall continue to ventilate all VOC emissions from the total enclosure to the control device and maintain control device efficiency at or above the demonstrated level or 95 percent, whichever is lower.

(ii) If the VOC control device in use during the control device efficiency demonstration made pursuant to § 60.713(a)(2) is subsequently replaced, each owner or operator shall install a VOC control device that is at least 95 percent efficient and ventilate all VOC emissions from the total enclosure to the control device.

(3) For coating operations not subject to paragraph (b)(1) or (2) of this section, each owner or operator shall control emissions from the coating operation by recovering or destroying at least 93 percent of the VOC content of the

coating applied at the coating applicator.

(c) Each owner or operator constructing new coating mix preparation equipment with concurrent construction of a new VOC control device (other than a condenser) on a magnetic tape coating operation shall control emissions from the coating mix preparation equipment by installing and using a cover on each piece of equipment and venting the equipment to a 95 percent efficient control device. Each cover shall meet the following specifications:

(1) Cover shall be closed at all times except when adding ingredients, withdrawing samples, transferring the contents, or making visual inspection when such activities cannot be carried out with cover in place. Such activities shall be carried out through ports of the minimum practical size.

(2) Cover shall extend at least 2 cm beyond the outer rim of the opening or shall be attached to the rim;

(3) Cover shall be of such design and construction that contact is maintained between cover and rim along the entire perimeter;

(4) Any breach in the cover (such as an opening for insertion of a mixer shaft or port for addition of ingredients) shall be covered consistent with (c) (2) and (3) of this section when not actively in use. An opening sufficient to allow safe clearance for a mixer shaft is acceptable during those periods when the shaft is in place; and

(5) A polyethylene or nonpermanent cover may be used provided it meets the requirements of (c) (2), (3), and (4) of this section. Such a cover shall not be reused after once being removed.

(d) Each owner or operator of affected coating mix preparation equipment not subject to § 60.712(c) shall control emissions from the coating mix preparation equipment by either:

(1) Installing and using a cover that meets the specifications in paragraphs (c)(1)–(5) of this section and venting VOC emissions from the equipment to a VOC control device; or

(2) Installing and using a cover that meets the specifications in paragraphs (c)(1)–(5) of this section.

(e) In lieu of complying with § 60.712(a) through (d), each owner or operator may use coatings that contain a maximum of 0.20 kg of VOC per liter of coating solids as calculated on a weighted average basis for each nominal 1-month period.

§ 60.713 Compliance provisions.

(a) Applicability of §§ 60.712(b) (1) and (2) (standards for modified or reconstructed coating operations) and determination of control level required in § 60.712(b)(1)(ii)(B).

(1) To establish applicability of § 60.712(b)(1), each owner or operator must demonstrate, prior to modification or reconstruction, that at least 90 percent of the VOC content of the coating applied at the coating applicator is recovered or destroyed. Such demonstration shall be made using the procedures of paragraph (b)(1), (b)(2), (b)(3), or (b)(4) of this section, as appropriate.

(2) To establish applicability of § 60.712(b)(2), each owner or operator must demonstrate, prior to modification or reconstruction, that a total enclosure is installed around the existing coating operation and that all VOC emissions are venilated to a control device that is at least 92 percent efficient. Such demonstration shall be made using the procedures of § 60.713(b)(5).

(3) To determine the level of control required in § 60.712(b)(1)(ii)(B), the owner or operator must demonstrate:

(i) That the VOC control device subsequently installed is at least 95 percent efficient. Such demonstration shall be made using Equation (2) specified in paragraph (b)(2)(iv) of this section or Equations (4) and (5) specified in paragraph (b)(3) (iv) and (v) of this section, as applicable, and the test methods and procedures specified in § 60.715(b)–(g); and

(ii) That the overall level of control after the VOC control device is installed is at least as high as the level demonstrated prior to modification or reconstruction pursuant to paragraph (a)(1) of this section. Such demonstrations shall be made using the procedures of paragraph (b)(1), (b)(2), (b)(3), or (b)(4) of this section, as appropriate. The required overall level of control subsequent to this demonstration shall be the level so demonstrated or 93 percent, whichever is lower.

(b) Compliance demonstrations for § 60.712(a), (b)(1), (b)(2), (b)(3), (c), (d), and (e).

(1) To demonstrate compliance with § 60.712(a), (b)(1), or (b)(3) (standards for coating operations) when emissions from only the affected coating operations are controlled by a dedicated solvent recovery device, each owner or operator of the affected coating operation shall perform a liquid-liquid VOC material balance over each and every nominal 1-month period. When demonstrating compliance by this procedure, § 60.8(f) of the General Provisions does not apply. The amount of liquid VOC applied and recovered shall be determined as discussed in paragraph (b)(1)(iii) of this section. The overall VOC emission reduction (R) is calculated using the following equation:

$$R = \frac{M_r}{\sum_{i=1}^{n} [W_{oi} M_{ci} - RS_i]} \times 100$$

(Equation 1)

(i) The value of RS_i is zero unless the owner or operator submits the following information to the Administrator for approval of a measured value of RS_i that is greater than zero:

(A) Measurement techniques; and

(B) Documentation that the measured value of RS_i exceeds zero.

(ii) The measurement techniques of paragraph (b)(1)(i)(A) of this section shall be submitted to the Administrator for approval with the notification of anticipated startup required under § 60.7(a)(2) of the General Provisions.

(iii) Each owner or operator demonstrating compliance by the test method described in paragraph (b)(1) of this section shall:

(A) Measure the amount of coating applied at the coating applicator;

(B) Determine the VOC content of all coatings applied using the test method specified in § 60.715(a);

(C) Install, calibrate, maintain, and operate, according to the manufacturer's specifications, a device that indicates the cumulative amount of VOC recovered by the solvent recovery device over each nominal 1-month period. The device shall be certified by the manufacturer to be accurate to within −2.0 percent;

(D) Measure the amount of VOC recovered; and

(E) Calculate the overall VOC emission reduction (R) for each and every nominal 1-month period using Equation 1.

(iv) For facilities subject to § 60.712 (a) or (b)(3), compliance is demonstrated if the value of R is equal to or greater than 93 percent.

(v) Subject to the provisions of (b)(1)(vi) of this section, for facilities subject to § 60.712(b)(1), compliance is demonstrated if the value of R is equal to or greater than the percent reduction demonstrated pursuant to § 60.713(a)(1) prior to modification or reconstruction or 93 percent whichever is lower.

(vi) For facilities subject to § 60.712(b)(1)(ii), compliance is demonstrated if the value of E (control device efficiency) is greater than or equal to 0.95 and if the value of R is equal to or greater than the percent reduction demonstrated pursuant to § 60.713(a)(3) or 93 percent, whichever is lower.

(2) To demonstrate compliance with § 60.712 (a), (b)(1), or (b)(3) (standards for coating operations) when the emissions from only an affected coating operation are controlled by a dedicated incinerator or when a common emission control device (other than a fixed-bed carbon adsorption system with individual exhaust stacks for each adsorber vessel) is used to control emissions from an affected coating operation as well as from other sources of VOC, each owner or operator of an affected coating operation shall perform a gaseous emission test using the following procedures:

(i) Construct the overall VOC emission reduction system so that all volumetric flow rates and total VOC emissions can be accurately determined by the applicable test methods and procedures specified in § 60.715 (b) through (g);

(ii) Determine capture efficiency from the coating operation by capturing, venting, and measuring all VOC emissions from the operation. During a performance test, the owner or operator of an affected coating operation located in an area with other sources of VOC shall isolate the coating operation emissions from all other sources of VOC by one of the following methods:

(A) Build a temporary enclosure (see § 60.711(a)(16)) around the affected coating operation; or

(B) Shut down all other sources of VOC and continue to exhaust fugitive emissions from the affected coating operation through any building ventilation system and other room exhausts such as drying ovens. All ventilation air must be vented through stacks suitable for testing;

(iii) Operate the emission control device with all emission sources connected and operating;

(iv) Determine the efficiency (E) of the control device using the following equation:

$$E = \frac{\sum_{i=1}^{n} Q_{bi}C_{bi} - \sum_{j=1}^{p} Q_{aj}C_{aj}}{\sum_{i=1}^{n} Q_{bi}C_{bi}}$$

(Equation 2)

(v) Determine the efficiency (F) of the VOC capture system using the following equation:

$$F = \frac{\sum_{i=1}^{n} Q_{di}C_{di}}{\sum_{i=1}^{n} Q_{di}C_{di} + \sum_{k=1}^{p} Q_{fk}C_{fk}}$$

(Equation 3)

(vi) For each affected coating operation subject to § 60.712 (a) or (b)(3), compliance is demonstrated if the product of (E)×(F) is equal to or greater than 0.93.

(vii) For each affected coating operation subject to § 60.712(b)(1)(i), compliance is demonstrated if the product of (E)×(F) is equal to or greater than the fractional reduction demonstrated pursuant to § 60.713(a)(1) prior to modification or reconstruction or 0.93, whichever is lower.

(viii) For each affected coating operation subject to § 60.712(b)(1)(ii), compliance is demonstrated if the value of E is greater than or equal to 0.95 and if the product of (E)×(F) is equal to or greater than the fractional reduction demonstrated pursuant to § 60.713(a)(3) or 0.93, whichever is lower.

(3) To demonstrate compliance with § 60.712 (a), (b)(1), or (b)(3) (standards for coating operations) when a fixed-bed carbon adsorption system with individual exhaust stacks for each adsorber vessel is used to control emissions from an affected coating operation as well as from other sources of VOC, each owner or operator of an affected coating operation shall perform a gaseous emission test using the following procedures:

(i) Construct the overall VOC emission reduction system so that each volumetric flow rate and the total VOC emissions can be accurately determined by the applicable test methods and procedures specified in § 60.715 (b) through (g);

(ii) Assure that all VOC emissions from the coating operation are segregated from other VOC sources and that the emissions can be captured for measurement, as described in § 60.713(b)(2)(ii) (A) and (B);

(iii) Operate the emission control device with all emission sources connected and operating;

(iv) Determine the efficiency (H_v) of each individual adsorber vessel (v) using the following equation:

$$H_v = \frac{Q_{gv}C_{gv} - Q_{hv}C_{hv}}{Q_{gv}C_{gv}}$$

(Equation 4)

(v) Determine the efficiency of the carbon adsorption system (H_{sys}) by computing the average efficiency of the adsorber vessels as weighted by the volumetric flow rate (Q_{hv}) of each individual adsorber vessel (v) using the following equation:

$$H_{sys} = \frac{\sum_{v=1}^{q} H_v Q_{hv}}{\sum_{v=1}^{q} Q_{hv}}$$

(Equation 5)

(vi) Determine the efficiency (F) of the VOC capture system using Equation (3).

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(vii) For the affected coating operation subject to § 60.712 (a) or (b)(3), compliance is demonstrated if the product of $(H_{sys}) \times (F)$ is equal to or greater than 0.93.

(viii) For the affected coating operation subject to § 60.712(b)(1)(i), compliance is demonstrated if the product of $(H_{sys}) \times (F)$ is equal to or greater than the fractional reduction demonstrated pursuant to § 60.713(a)(1) prior to modification or reconstruction or 0.93, whichever is lower.

(ix) For each affected coating operation subject to § 60.712(b)(1)(ii), compliance is demonstrated if the value of H_{sys} is greater than or equal to 0.95 and if the product of $(H_{sys}) \times (F)$ is equal to or greater than the fractional reduction demonstrated pursuant to § 60.713(a)(3) or 0.93, whichever is lower.

(4) To demonstrate compliance with § 60.712 (a), (b)(1), or (b)(3) (standards for coating operations) when the VOC emissions from more than one affected coating operation are collected by a common capture system and are vented through a common duct to a control device that is also controlling emissions from nonaffected sources and the emissions from the nonaffected sources are vented separately from the affected coating operations, the owner or operator may:

(i) Consider the combined affected coating operations as a single emission source; and

(ii) Conduct a compliance test on this single source by the methods described in § 60.713(b) (2) or (3), as applicable.

(5) An alternative method of demonstrating compliance with § 60.712 (a) or (b)(3) (standards for coating operations) and the sole method of demonstrating compliance with § 60.712(b)(2) (standards for modified or reconstructed coating operations) is the installation of a total enclosure around the coating operation and the ventilation of all VOC emissions from the total enclosure to a control device with the efficiency specified in paragraph (b)(5)(iii) (A) or (B) of this section, as applicable. If this method is selected, the compliance test methods described in paragraphs (b)(1), (b)(2), (b)(3), and (b)(4) of this section are not required. Instead, each owner or operator of an affected coating operation shall:

(i) Demonstrate that a total enclosure is installed. An enclosure that meets the requirements in paragraphs (b)(5)(i) (A) through (D) of this section shall be assumed to be a total enclosure. The owner or operator of an enclosed coating operation that does not meet the requirements may apply to the Administrator for approval of the enclosure as a total enclosure on a case-by-case basis. The enclosure shall be considered a total enclosure if it is demonstrated to the satisfaction of the Administrator that all VOC emissions from the affected coating operation are contained and vented to the control device. The requirements for automatic approval are as follows:

(A) Total area of all natural draft openings shall not exceed 5 percent of the total surface area of the total enclosure's walls, floor, and ceiling;

(B) All sources of emissions within the enclosure shall be a minimum of four equivalent diameters away from each natural draft opening;

(C) Average inward face velocity across all natural draft openings (FV) shall be a minimum of 3,600 meters per hour as determined by the following procedures:

(*1*) Construct all forced makeup air ducts and all exhaust ducts so that the volumetric flow rate in each can be accurately determined by the test methods and procedures specified in § 60.715 (c) and (d). Volumetric flow rates shall be calculated without the adjustment normally made for moisture content; and

(*2*) Determine FV by the following equation:

$$FV = \frac{\sum_{j=1}^{n} Q_{out\ j} - \sum_{i=1}^{p} Q_{in\ i}}{\sum_{k=1}^{q} A_k}$$

(Equation 6)

(D) The air passing through all natural draft openings shall flow into the enclosure continuously. If FV is less than or equal to 9,000 meters per hour, the continuous inward airflow shall be verified by continuous observation using smoke tubes, streamers, tracer gases, or other means approved by the Administrator while the procedures specified above in paragraph (b)(5)(i)(C) of this section are carried out. If FV is greater than 9,000 meters per hour, the direction of airflow through the natural draft openings shall be presumed to be inward at all times without verification.

(ii) Determine the control device efficiency using Equation (2) or Equations (4) and (5), as applicable, and the test methods and procedures specified in § 60.715 (b) through (g).

(iii) Compliance is demonstrated if the installation of a total enclosure is demonstrated and the value of E determined from Equation (2) (or the value of H_{sys} determined from Equations (4) and (5), as applicable) is equal to or greater than the required efficiency as specified below:

(A) For coating operations subject to the standards of § 60.712(a), (b)(2)(ii), and (b)(3), 0.95 (95 percent); or

(B) For coating operations subject to the standards of § 60.712(b)(2)(i), the value of E determined from Equation (2) (or the value of H_{sys} determined from Equations (4) and (5), as applicable) pursuant to § 60.713(a)(2) prior to modification or reconstruction or 0.95 (95 percent), whichever is lower.

(6) To demonstrate compliance with § 60.712(c) (standard for new mix equipment with concurrent construction of a control device), each owner or operator of affected coating mix preparation equipment shall demonstrate upon inspection that:

(i) Covers satisfying the requirements of § 60.712(c) (1)–(5) have been installed and are being used properly;

(ii) Procedures detailing the proper use of covers, as specified in § 60.712(c)(1), have been posted in all areas where affected coating mix preparation equipment is used;

(iii) The coating mix preparation equipment is vented to a control device; and

(iv) The control device efficiency (E or H_{sys}, as applicable) determined using Equation (2) or Equations (4) and (5), respectively, and the test methods and procedures specified in § 60.715 (b)–(g) is equal to or greater than 0.95.

(7) To demonstrate compliance with § 60.712(d)(1) (standard for mix equipment), each owner or operator of affected coating mix preparation equipment shall demonstrate upon inspection that:

(i) Covers satisfying the requirements of § 60.712(c)(1)–(5) have been installed and are being used properly;

(ii) Procedures detailing the proper use of covers, as specified in § 60.712(c)(1), have been posted in all areas where affected coating mix preparation equipment is used; and

(iii) The coating mix preparation equipment is vented to a control device.

(8) To demonstrate compliance with § 60.712(d)(2) (standard for mix equipment), each owner or operator of affected coating mix preparation equipment shall demonstrate upon inspection that both:

(i) Covers satisfying the requirements of § 60.712(c)(1)–(5) have been installed and are being used properly; and

(ii) Procedures detailing the proper use of covers, as specified in § 60.712(c)(1), have been posted in all areas where affected coating mix preparation equipment is used.

(9) To determine compliance with § 60.712(e) (high-solids coatings alternative standard), each owner or

operator of an affected facility shall determine the weighted average mass of VOC contained in the coating per volume of coating solids applied for each and every nominal 1-month period according to the following procedures:

(i) Determine the weight fraction of VOC in each coating applied using Method 24 as specified in § 60.715(a);

(ii) Determine the volume of coating solids in each coating applied from the facility record; and

(iii) Compute the weighted average by the following equation:

$$G = \frac{\sum_{i=1}^{n} W_{oi} M_{ci}}{\sum_{i=1}^{n} L_{si} V_{ci}}$$

(Equation 7)

(iv) For each affected facility where the value of G is less than or equal to 0.20 kilogram of VOC per liter of coating solids applied, the facility is in compliance.

(c) Startups and shutdowns are normal operation for this source category. Emissions from these operations are to be included when determining if the standards for coating operations specified in § 60.712 (a) and (b) are being attained.

(d) If a control device other than a carbon adsorber, condenser, or incinerator is used to control emissions from an affected facility, the necessary operating specifications for that device must be obtained from the Administrator. An example of such a device is a flare.

§ 60.714 Installation of monitoring devices and recordkeeping.

All monitoring devices required under the provisions of this section shall be installed and calibrated, according to the manufacturer's specifications, prior to the initial performance tests in locations such that representative values of the monitored parameters will be obtained. The parameters to be monitored shall be continuously measured and recorded during all performance tests.

(a) Each owner or operator of an affected coating operation that utilizes less solvent annually than the applicable cutoff provided in § 60.710(b) and that is not subject to § 60.712 (standards for coating operations) shall both:

(1) Make semiannual estimates of the projected annual amount of solvent to be utilized for the manufacture of magnetic tape at the affected facility in that calendar year and maintain records of these estimates; and

(2) Maintain records of actual solvent use.

(b) Each owner or operator of an affected coating operation demonstrating compliance by the test method described in § 60.713(b)(1) (liquid material balance) shall maintain records of all the following for each and every nominal 1-month period:

(1) Amount of coating applied at the applicator;

(2) Results of the reference test method specified in § 60.715(a) for determining the VOC content of all coatings applied;

(3) Amount VOC recovered; and

(4) Calculation of the percent VOC recovered.

(c) Each owner or operator of an affected coating operation or affected coating mix preparation equipment controlled by a carbon adsorption system and demonstrating compliance by the procedures described in § 60.713(b) (2), (3), (4), (5), or (6) (which include control device efficiency determinations) shall carry out the monitoring and recordkeeping provisions of paragraph (c) (1) or (2) of this section, as appropriate.

(1) For carbon adsorption systems with a common exhaust stack for all the individual adsorber vessels, install, calibrate, maintain, and operate, according to the manufacturer's specifications, a monitoring device that continuously indicates and records the concentration level of organic compounds in either the control device outlet gas stream or in both the control device inlet and outlet gas streams. The outlet gas stream would be monitored if the percent increase in the concentration level of organic compounds is used as the basis for reporting, as described in § 60.717(d)(3). The inlet and outlet gas streams would be monitored if the percent control device efficiency is used as the basis for reporting, as described in § 60.717(d)(4).

(2) For carbon adsorption systems with individual exhaust stacks for each adsorber vessel, install, calibrate, maintain, and operate, according to the manufacturer's specifications, a monitoring device that continuously indicates and records the concentration level of organic compounds in the outlet gas stream for a minimum of one complete adsorption cycle per day for each adsorber vessel. The owner or operator may also monitor and record the concentration level of organic compounds in the common carbon adsorption system inlet gas stream or in each individual carbon adsorber vessel inlet stream. The outlet gas streams alone would be monitored if the percent increase in the concentration level of organic compounds is used as the basis for reporting, as described in § 60.717(d)(3). In this case, the owner or operator shall compute daily a 3-day rolling average concentration level of organics in the outlet gas stream from each individual adsorber vessel. The inlet and outlet gas streams would be monitored if the percent control device efficiency is used as the basis for reporting, as described in § 60.717(d)(4). In this case, the owner or operator shall compute daily a 3-day rolling average efficiency for each individual adsorber vessel.

(d) Each owner or operator of an affected coating operation controlled by a condensation system and demonstrating compliance by the procedures described in § 60.713(b) (2), (4), or (5) (which include control device efficiency determinations) shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, a monitoring device that continuously indicates and records the temperature of the condenser exhaust stream.

(e) Each owner or operator of an affected coating operation or affected coating mix preparation equipment controlled by a thermal incinerator and demonstrating compliance by the procedures described in § 60.713(b) (2), (4), (5), or (6) (which include control device efficiency determinations) shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, a monitoring device that continuously indicates and records the combustion temperature of the incinerator. The monitoring device shall have an accuracy within ±1 percent of the temperature being measured in Celsius degrees.

(f) Each owner or operator of an affected coating operation or affected coating mix preparation equipment controlled by a catalytic incinerator and demonstrating compliance by the procedures described in § 60.713(b) (2), (4), (5), or (6) (which include control device efficiency determinations) shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, a monitoring device that continuously indicates and records the gas temperature both upstream and downstream of the catalyst bed. The monitoring device shall have an accuracy within ±1 percent of the temperature being measured in Celsius degrees.

(g) Each owner or operator of an affected coating operation demonstrating compliance pursuant to § 60.713(b) (2), (3), or (4) (which include VOC capture system efficiency determinations) shall submit a monitoring plan for the VOC capture system to the Administrator for approval along with the notification of

anticipated startup required under § 60.7(a)(2) of the General Provisions. This plan shall identify the parameter to be monitored as an indicator of VOC capture system performance (e.g., the amperage to the exhaust fans or duct flow rates) and the method for monitoring the chosen parameter. The owner or operator shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, a monitoring device that continuously indicates and records the value of the chosen parameter.

(h) Each owner or operator of an affected coating operation who uses the equipment alternative described in § 60.713(b)(5) to demonstrate compliance shall follow the procedures described in paragraph (g) of this section to establish a monitoring plan for the total enclosure.

(i) Each owner or operator of an affected coating operation shall record time periods of coating operations when an emission control device is not in use.

(j) Each owner or operator of an affected coating operation or affected coating mix preparation equipment complying with § 60.712(e) shall maintain records of the monthly weighted average mass of VOC contained in the coating per volume of coating solids applied for each coating, as described in § 60.713(b)(9) (i) through (iv).

(k) Records of the measurements and calculations required in § 60.713 and § 60.714 must be retained for at least 2 years following the date of the measurements and calculations.

[Sec. 114 of the Clean Air Act as amended (42 U.S.C. 7414)]

(Approved by the Office of Management and Budget under Control No. 2060–0171.)

§ 60.715 Test methods and procedures.

Methods in Appendix A of this part, except as provided under § 60.8(b), shall be used to determine compliance as follows:

(a) Method 24 is used to determine the VOC content in coatings. If it is demonstrated to the satisfaction of the Administrator that plant coating formulation data are equivalent to Method 24 results, formulation data may be used. In the event of any inconsistency between a Method 24 test and a facility's formulation data, the Method 24 test will govern. For Method 24, the coating sample must be a 1-liter sample taken into a 1-liter container at a location and time such that the sample will be representative of the coating applied to the base film (i.e., the sample shall include any dilution solvent or other VOC added during the manufacturing process). The container must be tightly sealed immediately after the sample is taken. Any solvent or other VOC added after the sample is taken must be measured and accounted for in the calculations that use Method 24 results.

(b) Method 18, 25, or 25A, as appropriate to the conditions at the site, is used to determine VOC concentration. The owner or operator shall submit notice of the intended test method to the Administrator for approval along with the notification of the performance test required under § 60.8(d) of the General Provisions. Method selection shall be based on consideration of the diversity of organic species present and their total concentration and on consideration of the potential presence of interfering gases. Except as indicated in paragraphs (b) (1) and (2) of this section, the test shall consist of three separate runs, each lasting a minimum of 30 minutes.

(1) When the method is to be used in the determination of the efficiency of a fixed-bed carbon adsorption system with a common exhaust stack for all the individual adsorber vessels pursuant to § 60.713(b) (2), (4), (5), or (6), the test shall consist of three separate runs, each coinciding with one or more complete sequences through the adsorption cycles of all the individual adsorber vessels.

(2) When the method is to be used in the determination of the efficiency of a fixed-bed carbon adsorption system with individual exhaust stacks for each adsorber vessel pursuant to § 60.713(b) (3), (4), (5), or (6), each adsorber vessel shall be tested individually. The test for each adsorber vessel shall consist of three separate runs. Each run shall coincide with one or more complete adsorption cycles.

(c) Method 1 or 1A is used for sample and velocity traverses.

(d) Method 2, 2A, 2C, or 2D is used for velocity and velumetric flow rates.

(e) Method 3 is used for gas analysis.

(f) Method 4 is used for stack gas moisture.

(g) Methods 2, 2A, 2C, 2D, 3, and 4 shall be performed, as applicable, at least twice during each test period.

§ 60.716 Permission to use alternative means of emission limitation.

(a) If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in emissions of VOC from any emission point subject to § 60.712 (c) or (d) (standards for mix equipment) at least equivalent to that required by § 60.712 (c) or (d), respectively, the Administrator will publish in the **Federal Register** a notice permitting the use of the alternative means. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

(b) Any notice under paragraph (a) of this section shall be published only after public notice and an opportunity for a public hearing.

(c) Any person seeking permission under this section shall submit either results from an emission test that documents the collection and measurement of all VOC emissions from a given control device or an engineering evaluation that documents the determination of such emissions.

§ 60.717 Reporting and monitoring requirements.

(a) For all affected coating operations subject to § 60.712 (a), (b)(1), (b)(2), or (b)(3) and all affected coating mix preparation equipment subject to § 60.712(c), the performance test data and results shall be submitted to the Administrator as specified in § 60.8(a) of the General Provisions (40 CFR Part 60 Subpart A). In addition, the average values of the monitored parameters measured at least every 15 minutes and averaged over the period of the performance test shall be submitted with the results of all performance tests.

(b) Each owner or operator of an affected coating operation claiming to utilize less than the applicable volume of solvent specified in § 60.710(b) in the first calendar year of operation shall submit to the Administrator, with the notification of projected startup, a material flow chart indicating projected solvent use. The owner or operator shall also submit actual solvent use records at the end of the initial calendar year.

(c) Each owner or operator of an affected coating operation initially utilizing less than the applicable volume of solvent specified in § 60.710(b) per calendar year shall:

(1) Report the first calendar year in which actual annual solvent use exceeds the applicable volume; and

(2) Report the first semiannual estimate in which annual solvent use would exceed the applicable volume.

(d) Each owner or operator of an affected coating operation, or affected coating mix preparation equipment subject to § 60.712(c), shall submit quarterly reports to the Administrator documenting the following:

(1) The 1-month amount of VOC contained in the coating, the VOC recovered, and the percent emission reduction for months of noncompliance for any affected coating operation demonstrating compliance by the performance test method described in § 60.713(b)(1) (liquid material balance);

(2) The VOC contained in the coatings for the manufacture of magnetic tape for any 1-month period during which the

average solvent content of any coating exceeded 0.20 kilogram per liter of coating solids for those affected facilities complying with § 60.712(e) (high-solids coatings alternative standard);

(3) For those affected facilities monitoring only the carbon adsorption system outlet concentration levels of organic compounds, the periods (during actual coating operations) specified in paragraph (d)(3) (i) or (ii) of this section, as applicable.

(i) For carbon adsorption systems with a common exhaust stack for all the individual adsorber vessels, all periods of three consecutive adsorption cycles of all the individual adsorber vessels during which the average value of the concentration level of organic compounds in the common outlet gas stream is more than 20 percent greater than the average value measured during the most recent performance test that demonstrated compliance.

(ii) For carbon adsorption systems with individual exhaust stacks for each adsorber vessel, all 3-day rolling averages for each adsorber vessel when the concentration level of organic compounds in the individual outlet gas stream is more than 20 percent greater than the average value for that adsorber vessel measured during the most recent performance test that demonstrated compliance.

(4) For those affected facilities monitoring both the carbon adsorption system inlet and outlet concentration levels of organic compounds, the periods (during actual coating operations), specified in (d)(4) (i) or (ii) of this section, as applicable.

(i) For carbon adsorption systems with a common exhaust stack for all the individual adsorber vessels, all periods of three consecutive adsorption cycles of all the individual adsorber vessels during which the average carbon adsorption system efficiency falls below the applicable level as follows:

(A) For those affected facilities demonstrating compliance by the performance test method described in § 60.713(b) (2) or (4), the value of E determined using Equation (2) during the most recent performance test that demonstrated compliance.

(B) For those affected facilities demonstrating compliance pursuant to § 60.713(b)(5)(iii)(A) or § 60.713(b)(6), 0.95 (95 percent).

(C) For those affected facilities demonstrating compliance pursuant to § 60.713(b)(5)(iii)(B), the required value of E determined using Equation (2) pursuant to § 60.713(a)(2) prior to modification or reconstruction or 0.95 (95 percent), whichever is lower.

(ii) For carbon adsorption systems with individual exhaust stacks for each adsorber vessel, all 3-day rolling averages for each adsorber vessel when the efficiency falls below the applicable level as follows:

(A) For those affected facilities demonstrating compliance by the performance test method described in § 60.713(b) (3) or (4), the value of H_v determined using Equation (4) during the most recent performance test that demonstrated compliance.

(B) For those affected facilities demonstrating compliance pursuant to § 60.713(b)(5)(iii)(A) or § 60.713(b)(6), 0.95 (95 percent).

(C) For those affected facilities demonstrating compliance pursuant to § 60.713(b)(5)(iii)(B), the value of H_v determined using Equation 4 pursuant to § 60.713(a)(2) prior to modification or reconstruction or 0.95 (95 percent), whichever is lower.

(5) All 3-hour periods (during actual coating operations) during which the average exhaust temperature is 5 or more Celsius degrees above the average temperature measured during the most recent performance test that demonstrated compliance for those affected facilities monitoring condenser exhaust gas temperature;

(6) All 3-hour periods (during actual coating operations) during which the average combustion temperature is more than 28 Celsius degrees below the average combustion temperature during the most recent performance test that demonstrated compliance for those affected facilities monitoring thermal incinerator combustion gas temperature;

(7) All 3-hour periods (during actual coating operations) during which the average gas temperature immediately before the catalyst bed is more than 28 Celsius degrees below the average gas temperature during the most recent performance test that demonstrated compliance and all 3-hour periods (during actual coating operations) during which the average gas temperature difference across the catalyst bed is less than 80 percent of the average gas temperature difference during the most recent performance test that demonstrated compliance for those affected facilities monitoring catalytic incinerator catalyst bed temperature; or

(8) All 3-hour periods (during actual coating operations) during which the average total enclosure or VOC capture system monitoring device readings vary by 5 percent or more from the average value measured during the most recent performance test that demonstrated compliance for those affected facilities monitoring a total enclosure pursuant to § 60.714(h) or VOC capture system pursuant to § 60.714(g).

(e) Each owner or operator of an affected coating operation, or affected coating mix preparation equipment subject to § 60.712(c), not required to submit reports under § 60.717(d) because no reportable periods have occurred shall submit semiannual reports so affirming.

(f) Each owner or operator of affected coating mix preparation equipment that is constructed at a time when no affected coating operation being constructed shall:

(1) Be exempt from the reporting requirements specified in § 670.7(a) (1), (2), and (4); and

(2) Submit the notification of actual startup specified in § 60.7(a)(3).

(g) The owner or operator of affected coating mix preparation equipment that is constructed at the same time as an affected coating operation shall include the affected coating mix preparation equipment in all the reporting requirements for the affected coating operation specified in § 60.7(a) (1) through (4).

(h) The reports required under paragraphs (b) through (g) of this section shall be postmarked within 30 days of the end of the reporting period.

(i) The requirements of this subsection remain in force until and unless EPA, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In this event, affected sources within the State will be relieved of the obligation to comply with this subsection, provided that they comply with the requirements established by the State.

[Sec. 114 of the Clean Air Act as amended (42 U.S.C. 7414)]

(Approved by the Office of Management and budget under Control No. 2060-0171.)

§ 60.716 Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States:

§ 60.711(a)(16)
§ 60.713(a)(4)
§ 60.713(b)(1)(i)
§ 60.713(b)(1)(ii)
§ 60.713(b)(5)(i)
§ 60.713(d)
§ 60.715(a)
§ 60.716

[FR Doc. 88-22483 Filed 9-30-88; 8:45 am]
BILLING CODE 6560-50-M